DIN 01613

Basis of Estimate and Opinion of Probable Project Cost

Durham-Orange Light Rail Transit Project



July 24, 2015

The NEPA Preferred Alternative for the D-O LRT Project would generally follow NC 54, I-40, US 15-501, and the North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The alignment would begin at UNC Hospitals, parallel Fordham Boulevard, proceed east on NC 54, travel north on I-40, parallel US 15-501 before it turns east toward the Duke University campus along Erwin Road, and then follow the NCRR Corridor parallel to NC 147 through downtown Durham, before reaching its eastern terminus near Alston Avenue. The alignment would consist of at-grade alignment, fill and cut sections, and elevated structures. In two sections of the alignment, Little Creek and New Hope Creek, multiple Light Rail Alternatives are evaluated in the DEIS.

This technical report contains information for all alternatives analyzed in the DEIS. However, pursuant to MAP 21, the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), a NEPA Preferred Alternative has been developed, which recommends C2A in the Little Creek section of the alignment, NHC 2 in the New Hope Creek section of the alignment, the Trent/Flowers Drive station, and the Farrington Road Rail Operations and Maintenance Facility.



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List of Acronyms and Abbreviations

Acronym/Abbreviation	Definition		
DEIS	Draft Environmental Impact Statement		
D-O	Durham-Orange		
D-O LRT	Durham-Orange Light Rail Transit		
FTA	Federal Transit Administration		
I-40	Interstate 40		
LPA	Locally Preferred Alternative		
NC	North Carolina		
NCDOT	North Carolina Department of Transportation		
NCRR	North Carolina Railroad		
NHC	New Hope Creek		
ROMF	rail operations maintenance facility		
ROW	right-of-way		
SCC	standard cost category		
UNC	University of North Carolina		
US	United States		
VA	Veteran Affairs		



Executive Summary

This report contains the opinion of probable capital cost as appendix A, and supporting explanations for the Durham-Orange Light Rail Transit (D-O LRT) Project. This information has been developed for the Draft Environmental Impact Statement (DEIS) for the project. As shown in Figure ES 1, the DEIS is evaluating various alignment, station, and rail operations and maintenance facility (ROMF) alternatives.

This report describes the Light Rail Alternatives, the 12 distinct combinations of alignment alternatives, and the five alternative sites for the ROMF for which an engineering opinion of probable costs was developed. It is not anticipated that the selection of the station alternatives will substantially affect the project's capital cost. It also describes the methodology used to estimate the project costs, the assumptions and contingencies for known scope issues which have project risk and cost implications, and the expected accuracy of the estimates. The cost estimates are based upon the latest version of the Basis for Engineering Design drawings dated February 2015, Rev-5 for inclusion in the DEIS. Costs presented in this estimate are in 2015 dollars with no future escalation applied.

Federal Transit Administration (FTA) guidelines for itemized cost breakdown were used in developing a bottoms-up estimate and to cover the identifiable elements of the project based upon preliminary engineering drawings.

The summary of estimated costs for each alternative combination is depicted in the Alternatives Cost Summary generally by Standard Cost Categories (SCC) included in the appendix. The total estimated project cost of each of the 12 alternatives ranges from \$1.535 billion to \$1.618 billion, not including the level of confidence factor noted below. The four lowest cost alternatives vary by only \$25 million (1.6 percent of lowest). The two lowest cost alternatives vary by only \$5 million (0.33 percent of the lowest cost). Given the expected accuracies of an estimate based upon 15 percent plans, it is recommended that, in addition to a contingency, a variance be placed on each alternative's total estimated project cost. After comparing the level of design and the cost estimating detail, it was concluded that the resulting estimate should have a level of confidence of plus or minus five percent, independent of any assumed contingency. Table ES-1 shows the total estimated project costs for the 12 alternatives with a range of -5.0 percent to +5.0 percent of the total estimated project cost.

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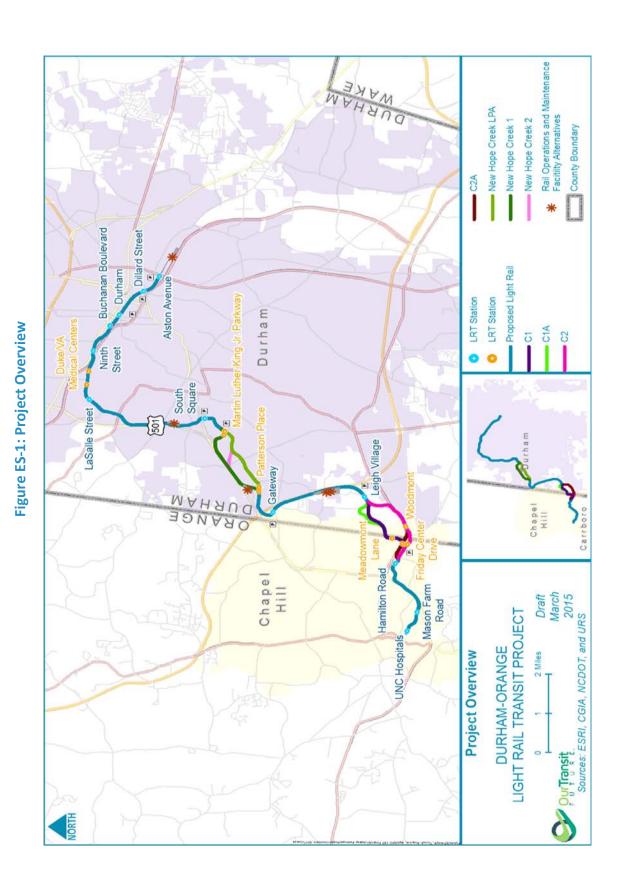




Table ES-1: Total Estimated Project Costs for Alignment Alternatives

Alternative	Low Range	High Range	Delta above Apparent Low	Comment
C2A/NHC LPA	\$1,458,000	\$1,612,000	\$	Apparent Lowest Cost Alternative
C2/NHC LPA	\$1,463,000	\$1,617,000	\$5,000	
C2A/NHC 2	\$1,468,000	\$1,622,000	\$10,000	
C2/NHC 2	\$1,473,000	\$1,628,000	\$15,00	
C2A/NHC 1	\$1,493,000	\$1,651,000	\$37,000	
C1A/NHC LPA	\$1,498,000	\$1,656,000	\$42,000	
C2/NHC 1	\$1,499,000	\$1,657,000	\$43,000	
C1/NHC LPA	\$1,502,000	\$1,660,000	\$46,000	
C1A/NHC 2	\$1,508,000	\$1,666,000	\$52,000	
C1/NHC 2	\$1,511,000	\$1,671,000	\$56,000	
C1A/NHC 1	\$1,533,000	\$1,695,000	\$79,000	
C1/NHC 1	\$1,537,000	\$1,699,000	\$83,000	

Note: Costs are in thousands (\$1000) 2015 dollars and include contingency but no escalation

Assumptions: Variance between low and high is plus or minus 5% of the total project cost in the appendix A.

The total cost of the ROMF based upon Farrington Road is included in this table. The variance in cost for the

ROMF alternative sites is addressed in Table ES-2

Table ES-2 shows a comparison of the capital costs of the ROMF alternatives.

Table ES-2: Comparison of ROMF Alternatives

ROMF Sites	Heavy Repair Maintenance Building, All Equipment, Maintenance Vehicles, and Yard	ROW and Relocation Costs	Lead Track Delta	Environmental Impacts	Total	Total Delta Costs
Leigh Village*	\$73,881,000	\$2,760,000	ı	\$2,000,000	\$78,641,000	\$1,400,000
Farrington Road	\$73,881,000	\$2,360,000	ı	\$1,000,000	\$77,241,000	ı
Patterson Place**	\$73,881,000	\$6,760,000	\$17,990,000	1	\$98,631,000	\$21,390,000
Cornwallis Road***	\$73,881,000	\$5,140,000	\$13,260,000	\$100,000	\$92,381,000	\$15,140,000
Alston Avenue****	\$73,881,000	\$37,100,000	\$4,480,000	\$5,000,000	\$120,461,000	\$43,220,000

Note: Total estimated cost for the Farrington Road Alternative is included in each of the alternatives shown in Table ES-2.

^{*} The environmental impact is an estimate on the cost associated with historic district and buildings assuming the building could be relocated; however, since an avoidance alternative exists, this alternative would likely be unacceptable.

^{**} Patterson Place Yard lead track is on aerial structure transition for 1000 feet.

^{***} Cornwallis Road Yard lead track is on aerial structure for 700 feet with extensive earthwork and retaining walls.

^{****} Includes approx. 3000' lead track and bridge plus acquisition and relocation costs for an existing industry which requires rail service.



1. Project Overview

Through the Alternatives Analysis process completed in April 2012 prior to preliminary design, which included extensive public outreach, a Locally Preferred Alternative (LPA) was selected to address the purpose and need of the Durham-Orange (D-O) Corridor. The proposed project is a 17.1 mile double-track light rail line with 17 proposed stations that will greatly expand transit service in Durham and Orange Counties. The proposed D-O LRT Project extends from its western terminus at the University of North Carolina at Chapel Hill (UNC) at the UNC Hospitals Station to the eastern terminus in Durham at the Alston Avenue Station. The proposed D-O LRT Project improves public transportation access to a range of educational, medical, employment, and other important activity centers in the D-O Corridor including: UNC; UNC Hospitals; the William and Ida Friday Center for Continuing Education; Duke University; Durham Veterans Affairs (VA) Medical Center and Duke University Medical Center; downtown and east Durham; North Carolina Central University; and Durham Technical Community College.

1.1 Description of the Proposed D-O LRT

The proposed D-O LRT alignment generally follows North Carolina (NC) Highway 54 (NC 54), Interstate 40 (I-40), United States (US) 15-501, and runs parallel to North Carolina Railroad (NCRR) Corridor in downtown Durham and east Durham. The proposed alignment begins in Chapel Hill at UNC Hospitals, parallels Fordham Boulevard, proceeds eastward adjacent to NC 54, travels north along I-40, parallels US 15-501 before it turns east towards Duke University and runs within Erwin Road, and then follows the NCRR Corridor that parallels NC Highway 147 (NC 147) through downtown Durham, before reaching its eastern terminus in Durham near Alston Avenue. A total of 17 stations are planned, and up to 5,100 parking spaces along the D-O LRT alignment will be provided. In addition, a rail operations and maintenance facility (ROMF) will be constructed to accommodate the D-O LRT fleet.

1.2 Project Alternatives

Consistent with the September 2012 Scoping Report, and as described herein, the Draft Environmental Impact Statement (DEIS) will examine the potential environmental impacts of the Light Rail Alternatives in comparison to the No-Build Alternative. The following list of Light Rail Alternatives inclusive of alignment, station, and ROMF siting alternatives:

- Crossing of Little Creek between the Hamilton Road Station and the Leigh Village Station (i.e., Alternatives C1, C1A, C2, C2A and associated station locations)
- Crossing of New Hope Creek (NHC) and Sandy Creek between Patterson Place and South Square (i.e., NHC LPA, NHC 1, and NHC 2 Alternatives and associated station locations)
- Station alternatives at Duke/VA Medical Centers (i.e., Duke Eye Center and Trent/Flowers Drive)
- Five proposed locations for the ROMF (i.e., Leigh Village ROMF, Farrington Road ROMF, Patterson Place ROMF, Cornwallis Road ROMF, and Alston Avenue ROMF)

1.3 Capital Cost Estimate – General Assumptions

This report provides an approximation of total project capital cost excluding finance costs. All estimated costs are in mid-year 2015 dollars with no escalation applied. This estimate is based upon the latest version of the *Basis for Engineering Design*, February 2015, Rev-5 for inclusion in the DEIS.



Detailed cost estimates have been developed for Standard Cost Categories (SCC) 10-50 construction and SCC category 60 right-of-way (ROW). SCC category 70 vehicle costs are priced from historical unit price data. SCC category 80 professional fees are estimated as a percentage of construction costs.

All costs in this estimate are based upon a conventional Design-Bid-Build project delivery method for one complete project. If Design-Build, Public Private Partnership or some other method of procurement is used, this estimate would need to be re-evaluated to account for the method of procurement. Likewise, if the project is separated into various work packages, separate contracts or segments, this estimate would need to be re-evaluated for cost and project schedule assumptions.

Detailed capital cost estimates are included in appendix A. Each detailed alternative estimate includes a Federal Transit Administration (FTA) SCC Main Build worksheet. To further facilitate evaluation, the cost estimate summary includes a comparison report organized generally by FTA SCC with side-by-side comparison of the capital cost estimates for the 12 combinations of alternatives.

1.4 Cost Estimate Work Breakdown Structure

To provide an outline or framework for organizing and tracking costs, the twelve estimates for the combination of alternatives identify major components following FTA guidelines. These guidelines organize costs into the following SCC:

Construction Costs:

10 GUIDEWAY & TRACK ELEMENTS

10.02 Guideway: At grade semi-exclusive (allows cross traffic)

10.04 Guideway: Aerial structure 10.05 Guideway: Built up fill

10.08 Guideway: Retained cut or fill

10.09 Track: Direct fixation 10.10 Track: Embedded 10.11 Track: Ballasted

10.12 Track: Special (switches, turnouts)10.13 Track: Vibration and noise dampening

20 STATIONS, STOPS, TERMINALS, INTERMODAL

20.01 At-grade station, stop, shelter, mall, terminal, platform

20.02 Aerial station, stop, shelter, mall, terminal, platform

20.06 Automobile parking multi-story structure

20.07 Elevators, escalators

30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS

30.01 Administration building: Office, sales, storage, revenue counting

30.03 Heavy maintenance facility

30.04 Storage or maintenance-of-way building

30.05 Yard and yard track

40 SITEWORK & SPECIAL CONDITIONS

40.01 Demolition, clearing, earthwork

40.02 Site utilities, utility relocation

40.03 Hazardous material, contaminated soil removal/mitigation, ground water treatments

40.04 Environmental mitigation: e.g., wetlands, historical/archeologic, parks

40.05 Site structures including retaining walls, sound walls

40.06 Pedestrian/bike access and accommodation, landscaping

40.07 Automobile, bus, van access ways including roads, parking lots



40.08 Temporary facilities and other indirect costs during construction

50 SYSTEMS

- 50.01 Train control and signals
- 50.02 Traffic signals and crossing protection
- 50.03 Traction power supply: substations
- 50.04 Traction power distribution: catenary and third rail
- 50.05 Communications
- 50.06 Fare collection

Other Non-Construction Costs:

60 RIGHT OF WAY, LAND, EXISTING IMPROVEMENTS

- 60.01 Purchase or lease of real estate
- 60.02 Relocation of existing households and businesses

70 VEHICLES

- 70.01 Light rail
- 70.06 Non-revenue vehicles
- 70.07 Spare parts

80 PROFESSIONAL SERVICES

- 80.01 Project development
- 80.02 Engineering
- 80.03 Project management for design and construction
- 80.04 Construction administration and management
- 80.05 Professional liability and other non-construction insurance
- 80.06 Legal, permits, review fees by other agencies, cities, etc.
- 80.07 Surveys, testing, investigation, inspection
- 80.08 Startup
- 90 Unallocated contingency
- 100 Finance charges



2. Comparison of Alignment and Station Alternatives

This section documents the differences between the 12 combinations of alignment alternatives identified in the DEIS. The five ROMF alternative sites will be discussed separately in section 3. There are four alternatives for crossing Little Creek called C1, C1A, C2, and C2A. In addition, there are three alternatives for crossing NHC called NHC 1, NHC 2, and NHC LPA. The combination of the four alternatives crossing Little Creek and the three NHC alternatives creates the 12 combinations of alignment alternatives. It is noted that there are alternative locations for the Duke/VA Medical Centers Station, but the difference in the length of the alignment is less than one foot and the station plan for each station alternative is identical; so, for cost estimating purposes one common estimate was developed for both station alternatives.

The overall difference from the longest route (C1A/NHC 1 at 17.45 miles) to the shortest (C1/NHC LPA at 16.87 miles) would be 0.58 miles shorter or 3.32 percent of the length of the longest (C1A/NHC 1) route (see Table 2-1).

Table 2-1: Total Project Length of Each Alternative

Total Alignments	Total Le	ength
Total Alignments	Feet	Miles
C1/NHC LPA/Trent	89,090	16.87
C1A/ NHC LPA/Trent	90,465	17.13
C2/ NHC LPA/Trent	89,942	17.03
C2A/ NHC LPA/Trent	89,776	17.00
C1/NHC 1/Trent	90.744	17.19
C1A/NHC 1/Trent	92,119	17.45
C2/NHC 1/Trent	91,596	17.35
C2A/NHC 1/Trent	91,430	17.32
C1/NHC 2/Trent	90,123	17.07
C1A/NHC 2/Trent	91,498	17.33
C2/NHC 2/Trent	90,975	17.23
C2A/NHC 2/Trent	90,809	17.20

The estimated capital cost of each combination of alternatives is presented in Table 2-2 with a range applied to the total project cost of each as shown in the appendix A. The primary cost differences among the 12 combinations of alternatives can be attributed to the following major elements: 1) guideway length; 2) length of aerial structures; 3) aerial vs. at-grade stations; 4) amount of mitigation required; 5) impacts to utilities; and 6) right-of-way. The comparisons between each of the major elements for all of the alternatives are detailed in Table 2-3 and Table 2-4.



Table 2-2: Total Estimated Project Costs for Alignment Alternatives

Alternative	Low Range	High Range	Delta above Apparent Low	Comment
C2A/NHC LPA	\$1,458,000	\$1,612,000	\$	Apparent Lowest Cost Alternative
C2/NHC LPA	\$1,463,000	\$1,617,000	\$5,000	
C2A/NHC 2	\$1,468,000	\$1,622,000	\$10,000	
C2/NHC 2	\$1,473,000	\$1,628,000	\$15,00	
C2A/NHC 1	\$1,493,000	\$1,651,000	\$37,000	
C1A/NHC LPA	\$1,498,000	\$1,656,000	\$42,000	
C2/NHC 1	\$1,499,000	\$1,657,000	\$43,000	
C1/NHC LPA	\$1,502,000	\$1,660,000	\$46,000	
C1A/NHC 2	\$1,508,000	\$1,666,000	\$52,000	
C1/NHC 2	\$1,511,000	\$1,671,000	\$56,000	
C1A/NHC 1	\$1,533,000	\$1,695,000	\$79,000	
C1/NHC 1	\$1,537,000	\$1,699,000	\$83,000	

Note: Costs are in thousands (\$1000) 2015 dollars and include contingency but no escalation

Assumptions: Variance between Low and High is plus or minus 5% of the Total Project Cost in the appendix A.

The total cost of the ROMF based upon Farrington Road is included in this table. The variance in cost for the

ROMF alternative sites is addressed in Table 3-1

Table 2-3 identifies specific cost estimate items where there are significant cost differences between the three Little Creek alternatives. It does not include items with minor differences so the totals are for comparison only.



Table 2-3: Cost Differentiation Items for Little Creek Alternatives¹

Item	C1	C1A	C2	C2A
FINLEY GOLF COURSE				
3rd hole reconfiguration	\$440,000	\$440,000	\$440,000	\$0
Golf course protection wall	\$1,450,000	\$1,450,000	\$1,450,000	\$0
FRIDAY CENTER STATION				
Station (aerial vs. at grade)	\$9,800,000	\$9,800,000	\$2,600,000	\$2,600,000
Parking lot reconfiguration	\$1,620,000	\$1,620,000	\$3,400,000	\$1,620,000
AERIAL STRUCTURES				
Over wetlands and Little Creek	\$23,370,000	\$9,210,000	\$0	\$0
Guideway (aerial at Friday Center Station and over NC 54)	\$23,940,000	\$23,940,000	\$0	\$0
Over NC 54 and Little Creek	\$0	\$0	\$18,330,000	\$18,330,000
RIGHT-OF-WAY	\$6,330,000	\$11,990,000	\$4,840,000	\$780,000
TOTAL WITH ALLOCATED CONTINGENCIES	\$66,950,000	\$58,450,000	\$31,060,000	\$23,330,000

¹ All costs include unallocated contingency.

Finley Golf Course

- o 3rd hole reconfiguration Alternative C2A closely follows the right-of-way along both NC 54. By connecting with NC 54 further west, than the other alternatives, it avoids causing impacts to the Finley Golf Course's third hole. The other three alternatives C1, C1A, and C2 would go near the 3rd tee and would incur additional costs of approximately \$440,000 due to reconstruction of the golf course. Golf course protection wall The same three alternatives would also require approximately \$1.45 million as an allowance for future discussions with UNC regarding the type, height, and length of an errant golf ball protective wall along the third hole.
- All four alternatives for crossing Little Creek would have a common cost of approximately \$1.35 million to re-work holes 16, 17, and 18; therefore this cost is not included in the comparison.

Friday Center Station

- Stations Alternatives C1 and C1A would require an aerial station costing approximately \$9.8 million. While alternatives C2 and C2A, Friday Center Station would be at grade and cost approximately \$2.6 million.
- Parking lot reconfiguration Parking for Alternative C2 would bisect the parking lot, requiring a new layout of the parking stalls. This new layout would require changing the surface grading and drainage so it is estimated as all new parking at a cost of approximately \$3.4 million. The other three alternatives could utilize the existing parking lot with fewer modifications at a cost of approximately \$1.6 million.



Aerial Structures

- o Floodplain aerial structures Alternatives C1 and C1A would deviate from C2 and C2A and cross over NC 54. The C1 and C1A alternatives would go over floodplain associated with Little Creek via aerial structures. The Little Creek floodplain aerial structure for alternative C1 would be 1,990 feet long and cost approximately \$23.4 million. For Alternative C1A, the aerial structure crossing the Little Creek flood plain would be 700 feet long and cost approximately \$9.2 million. Wetland and stream mitigation costs for the Little Creek crossing are expected to be minimal since all alternatives include aerial structures across sensitive areas.
- C1 and C1A would cross over NC 54. Included in the aerial structure would be an aerial Friday Center Station. The C1 and C1A alternatives would include a 2,400 foot long aerial structure in this area costing approximately \$23.9 million, including the Friday Center Station.
- C2 and C2A guideway over NC 54 Both alternatives would cross over NC 54 and the floodplain for Little Creek on a single aerial structure that would be 1,915 feet long and cost approximately \$18.3 million.
- Right-of-Way: Right-of-way required for the C1 Alternative would be approximately \$6.3 million; C1A would cost approximately \$12.0 million; C2 would cost approximately \$4.8 million; and C2A would cost approximately \$0.8 million. The C1 and C1A Alternatives' costs are higher because they would require the acquisition of more private property along Meadowmont Lane. The C2 and C2A costs are lower because they would be able to use the existing NC 54 right-of-way.

Table 2-4 identifies specific cost estimate items where there are significant cost differences between the three New Hope Creek alternatives. It does not include items with minor differences so the totals are for comparison only.



Table 2-4: Cost Differentiation Items for New Hope Creek Alternatives $^{\mathtt{1}}$

\$0 \$2,480,000 \$7,150,000 \$42,940,000 \$1,810,000 \$2,920,000 \$6,000,000 \$11,880,000 \$75,180,000 NHC LPA \$0 \$Q \$7,730,000 \$76,940,000 \$8,410,000 \$49,680,000 \$1,810,000 \$2,710,000 \$6,600,000 NHC 2 \$4,190,000 \$11,880,000 \$2,480,000 \$12,820,000 \$98,600,000 \$38,790,000 \$20,590,000 \$1,250,000 \$6,600,000 Martin Luther King Jr. Parkway crossing Telecommunications(including fiber) **Total Cost with Allocated Contingencies** Electric (relocate overhead power) Aerial structures over floodplains Hazardous materials allowance Martin Luther King Jr Station Item Pedestrian bridge **Embedded track** (aerial vs. at-grade) **Aerial structures Environmental** Right-of-way Guideway Utilities

 $^{^{1}\,\}mathrm{All}$ costs include allocated contingency.



Aerial Structures

- Floodplains Alternatives NHC 1 and NHC 2 turn north from Patterson Place Station and are within the right-of-way along US 15-501 while crossing floodplain associated with NHC. For Alternative NHC 1 the aerial structures over the floodplain would be 3,250 feet and for Alternative NHC 2 the structure would be 4,750 feet. Alternative NHC LPA would leave the Patterson Place Station heading more easterly and the two aerial structures over the floodplains would total 3,595 feet.
- Martin Luther King Jr. Parkway Structure Alternative NHC 1 would extend further to the east before merging onto University Drive and would have an aerial structure 2,150 feet long over Martin Luther King Jr. Parkway whereas alternatives NHC 2 and NHC LPA would enter University Drive at Snow Crest Trail and would be at grade crossing Martin Luther King Jr. Parkway. The cost of this structure required for alternative NHC 1 would be approximately \$20.6 million compared to an equivalent at-grade guideway construction of approximately \$1.8 million.
- Guideway: Embedded track Because alternatives NHC 2 and NHC LPA merge onto University Drive sooner there would be more embedded track in these alternatives, than NHC 1. For Alternative NHC 1 the embedded track length would be approximately 1,200 feet compared to 2,600 feet for Alternative NHC 2 and 2,800 for Alternative NHC LPA.
- Martin Luther King Jr. Parkway Pedestrian Bridge: Alternative NHC 1 includes a pedestrian bridge crossing over Martin Luther King Jr. Parkway. In alternatives NHC 2 and NHC LPA, the station would be in the center of University Drive creating a pedestrian refuge for pedestrian crossing University Drive.
- Environmental: Hazardous materials remediation Alternatives NHC 1 and NHC 2 each would have two additional sites rated as high risk for potential hazardous materials contamination. At an estimated remediation cost of \$300,000 per site, this would add a total of an additional \$600,000 to the NHC 1 and NHC 2 alternatives.

Utilities

- Communications Alternative NHC 2 would have approximately \$3.5 million less impact to existing copper and fiber optic telecommunication lines than Alternatives NHC 1 and NHC LPA.
- Power Alternative NHC 2 would have approximately \$2.5 million less impact to existing power lines than the alternatives NHC LPA and NHC 1, both of which would require substantial costs in relocating overhead power lines to avoid conflict with the light rail overhead power system.
- **Right-of-Way:** Right-of-way required for NHC 1 would be approximately \$12.8 million, NHC 2 would be \$7.7 million, and NHC LPA is \$7.2 million. The higher costs for NHC 1 and NHC 2 are primarily because of impacts along US 15-501 and the Garrett Road area.



3. Discussion and Comparison of ROMF Sites

The ROMF alternatives were estimated in detail using the Farrington Road Yard facility and applying that same building facility and yard cost for all alternative sites with expected variances factored into the total costs for the other sites. Note the total cost for the Farrington Road site is included in Table 2-2. Variable costs for each site include right-of-way and relocations, lead track, and environmental impacts. These factors are summarized in Table 3-1, with the rightmost column indicating the respective sites' variances from the Farrington Road site total cost.

Table 3-1: Comparison of ROMF sites

ROMF Sites	Heavy Repair Maintenance Building, All Equipment, Maintenance Vehicles, and Yard	ROW and Relocation Costs	Lead Track Delta	Environmental Impacts	Total	Total Delta Costs
Leigh Village *	\$73,881,000	\$2,760,000	1	\$2,000,000	\$78,641,000	\$1,400,000
Farrington Road	\$73,881,000	\$2,360,000	1	\$1,000,000	\$77,241,000	-
Patterson Place **	\$73,881,000	\$6,760,000	\$17,990,000	1	\$98,631,000	\$21,390,000
Cornwallis Road ***	\$73,881,000	\$5,140,000	\$13,260,000	\$100,000	\$92,381,000	\$15,140,000
Alston Avenue ****	\$73,881,000	\$37,100,000	\$4,480,000	\$5,000,000	\$120,461,000	\$43,220,000

Note: Total estimated cost for the Farrington Road Alternative is included in each of the alternatives shown in Table 3-1.

^{*} The environmental impact is an estimate on the cost associated with historic district and buildings assuming the building could be relocated; however, since an avoidance alternative exists, this alternative would likely be unacceptable

^{**} Patterson Place Yard Lead is on aerial structure transition for 1000 feet.

^{***} Cornwallis Road Yard Lead is on aerial structure for 700 feet with extensive earthwork and retaining walls.

^{****} Includes approx. 3000' lead track and bridge plus acquisition and relocation costs for an existing industry which requires rail service.



4. Contingency

For this cost estimate, allocated contingency is applied to each FTA SCC by the line item percentage method. To determine the appropriate contingency amount, the following steps were used:

- Cost estimators reviewed the scope of each component of the project with the planner, engineer, architect, or other responsible person for that particular component in relation to the appropriate level of engineering information available.
- Risk items were identified by work breakdown structure element and identified as to the probability of occurrence and potential cost impact.
- Risks were identified as either accounted for in the cost estimate or accounted for in the allocated contingency.
- The above factors were considered by the project team to arrive at a consensus allocated contingency percentage for each line item.

Table 4-1 summarizes the project risks, probabilities, potential cost impacts, and allocated contingency factor used in addressing each risk for the cost estimate:

Table 4-1: Project Allocated Contingencies

Work Element		Cont. % Used	Noted Risks		
10 Guideway and Track Elements (route miles)					
10.02	Guideway: At-grade semi- exclusive (allows cross- traffic)	25%	Undercutting unsuitable material not in estimate. Changes possible to alignment ROW, utility or political issues.		
10.04	Guideway: Aerial structure	30%	More Geotechnical info could significantly change foundation type or depths.		
10.05	Guideway: Built-up fill	25%	Fairly well defined. Possible minor changes to alignment.		
10.08	Guideway: Retained cut or fill	25%	Fairly well defined. Possible minor changes to alignment.		
10.09	Track: Direct fixation	30%	Partially detailed in estimate. Track is estimated by linear foot unit price. Material fluctuations.		
10.10	Track: Embedded	30%	Partially detailed in estimate. Material fluctuations.		
10.11	Track: Ballasted	30%	Partially detailed in estimate Material fluctuations.		
10.12	Track: Special (switches, turnouts)	30%	Not detailed in estimate yet. Material fluctuations.		
10.13	Track: Vibration and noise dampening	30%	Not detailed in estimate. Still an allowance item. Material fluctuations.		



	Work Element	Cont. % Used	Noted Risks
20 Stat	tions, Stops, Terminals, Interr	nodal (nu	mber)
20.01	At-grade station, stop, shelter, mall, terminal, platform	30%	Possible changes to finish materials. Size of platforms is set.
20.02	Aerial station, stop, shelter, mall, terminal, platform	30%	Possible changes to finish materials. Size of platforms is set.
20.06	Automobile parking multi- story structure	25%	Structure is pretty well defined. Added finishes may be subject to changes.
20.07	Elevators, escalators	30%	Glass enclosure system to be further defined.
30 Sup	port Facilities: Yards, Shops,	Admin. Bu	ildings
30.01	Administration building: Office, sales, storage, revenue counting	30%	Programming still being adjusted with large cost and risk differences between the five sites due to ROW, lead track and environmental impacts. Functions and how maintenance will be done could also change.
30.03	Heavy maintenance facility	30%	Programming could still be adjusted based on how maintenance functions will be done.
30.04	Storage or maintenance of way building	30%	Programming could still be adjusted based on how maintenance functions will be done.
30.05	Yard and yard track	30%	Programming could still be adjusted based on how much lead track or site work is required for the different alternative sites.
40 Site	work and Special Conditions		
40.01	Demolition, clearing, earthwork	35%	Demo and clearing have not been fully itemized. Priced on a \$/acre basis which can vary depending on the alternative chosen.
40.02	Site utilities, utility relocation	45%	Unknown underground utilities are frequently uncovered. Can cause delays to schedule both before and during construction.
40.03	Hazardous material, contaminated soil removal/mitigation, ground water treatments	50%	Types of material encountered can vary, causing different types of remediation methods. Can cause schedule delays.
40.04	Environmental mitigation, e.g., wetlands, historic/archaeologic, parks	30%	Permitting issues can cause schedule delays.
40.05	Site structures including retaining walls, sound walls	30%	Guideway retaining walls are included in SCC 10 elements. This item is an undefined allowance for minor site retaining and noise walls if needed.



	Work Element	Cont. % Used	Noted Risks	
40.06	Pedestrian / bike access and accommodation, landscaping	35%	Nature of this work is it is done in numerous locations and small quantities.	
40.07	Automobile, bus, van access-ways including roads, parking lots	25%	Roadway limits are well defined but pavement sections and some drainage items are not detailed.	
40.08	Temporary facilities and other indirect costs during construction	30%	Allowance of 1.0% of project.	
50 Syst	ems			
50.01	Train control and signals	30%	Initial system configuration established, but details not yet developed.	
50.02	Traffic signals and crossing protection	20%	Location and configuration of traffic signals fairly well defined	
50.03	Traction power supply: substations	20%	Number and location of substations and power source fairly well defined	
50.04	Traction power distribution: catenary and third rail	20%	Number of poles and overhead catenary system wire runs fairly well defined	
50.05	Communications	40%	Technology, interfaces and extent of system not yet established	
50.06	Fare collection system and equipment	30%	Technology and interface with bus system not yet determined	
Constr	uction Subtotal (10 - 50)			
60 Rov	v, Land, Existing Improvemen	ts		
60.01	Purchase or lease of real estate	30%	Detailed estimate by parcel, but ROW often is subject to delays and cost overruns. Cost of ROW from UNC, Duke University and NCRR are not yet defined. Easements are not yet defined.	
60.02	Relocation of existing households and businesses	30%	Can be difficult to determine until final negotiations.	
70 Vehicles (number)				
70.01	Light Rail	10%	No. of LRV set. Pricing based on other LRT project purchases.	
70.06	Non-revenue vehicles	10%	Pricing based on other LRT project purchases.	
70.07	Spare parts	10%	Pricing based on other LRT project purchases.	



	Work Element	Cont. % Used	Noted Risks			
80 Pro	80 Professional Services (applies to Cats. 10-50)					
80.01	Project development	10%	Estimated as a percentage of costs above.			
80.02	Engineering	10%	Estimated as a percentage of costs above.			
80.03	Project management for design and construction	10%	Estimated as a percentage of costs above.			
80.04	Construction administration and management	10%	Estimated as a percentage of costs above.			
80.05	Professional liability and other non-construction insurance	10%	Estimated as a percentage of costs above.			
80.06	Legal; permits; review fees by other agencies, cities, etc.	10%	Estimated as a percentage of costs above.			
80.07	Surveys, testing, investigation, inspection	10%	Estimated as a percentage of costs above.			
80.08	80.08 Start up		Estimated as a percentage of costs above.			
90 Una	90 Unallocated Contingency					
90 Una	llocated Contingency	6%	Still undefined phasing, bid packages, project delivery method, insurance requirements, etc.			



5. Estimate Accuracy

The plans and information utilized to prepare this cost estimate are preliminary in nature. Many parts of the plans are advanced to near the "Preliminary Engineering" level of completion, thus affording the opportunity to obtain better engineering type quantity take-offs and scope. This applies to the guideway, aerial structures, local roads, stations, and the ROMF. It does not apply to track work, utilities, mitigation, systems, and vehicles. Given the expected accuracies of an estimate based upon 15 percent plans, it is recommended that, in addition to a contingency, a variance be placed on each alternative's total estimated project cost. After comparing the level of design and the cost estimating detail it was concluded that the resulting estimate should have a level of confidence of plus or minus five percent, independent of any assumed contingency. The final cost of the project could vary more than the five percent presented in this report.



6. Discussion of Work Elements

The quantities and methods described above were applied to the C2A/NHC LPA/Trent combination of alternatives. Many of those quantities and costs were then applied parametrically to the other combinations on a linear foot or other unit price basis.

10 Guideway and Track Elements- To estimate the guideway costs, the C2A/NHC LPA/Trent combination of alternatives was estimated based on engineering quantities for erosion control, excavation items, embankment, retaining walls, ballast curbs, cable troughs, guideway system-wide drainage, grassing, etc. Unit prices are then calculated in \$/LF for the various FTA guideway line items for these typical sections:

- 10.02 at grade to 5 feet of fill
- 10.05 5 feet to 20 feet of fill
- 10.05 20 feet or higher fill
- 10.08 retained fill from 5 feet to 20 feet
- 10.08 retained fill 20 feet or higher.

Note that all of the excavation for the entire alignment is allocated in the SCC 10.02.

Costs differences are accounted for in each alternate by parametrically applying the same ratio of typical sections and \$/Linear Foot (LF) unit prices to the differing lengths of guideway.

10.04 Aerial structures – Aerial structures for the guideway are estimated from preliminary plans for the piers, beams, deck and railings. General assumptions for the structures are as follows:

- Foundation types and quantities are approximated from preliminary geotechnical information.
- All concrete reinforcing steel is assumed to be tack welded for corrosion control from the foundations up to the superstructure.
- Structures include a cast in place cable tray trough curb, wall, walkway cover and handrails.
- Structures costs include abutment walls and transition slabs.
- Structure costs include bridge drainage piping and downspouts to grade.
- On longer bridges, costs include emergency egress stair towers.
- Costs include a dry-stand pipe fire control system.

10.9-10.13 Track work – Three typical sections are estimated for the following inclusive from the compacted subgrade up:

- 10.09 Direct fixation includes plinths, fasteners & clips, rails and shims.
- 10.10 Embedded track includes sub-grade, sub-base, track slab, plates and clips, fasteners, rails, and boots.
- 10.11 Ballasted track includes sub-grade, sub-ballast, ballast, geotextile, ties, plates and clips, rails and shims.
- 10.12 Special track work includes crossovers, emergency guardrail, pre-curved running rail, and pre-curved restraining rail.
- 10.13 Vibration and noise dampening Costs for resilient clips are included as standard in the trackwork items and is considered standard practice nowadays for noise reduction purposes.

20.01-20.02 Stations, Stops, Terminals, Intermodal – Passenger stations are estimated by type, side platform, split-side platform, center platform, or aerial as a typical station per location. Each station-specific cost includes site specific quantities for the other various elements such as bus bays, crosswalks, drop off/pick up lanes, other pavement, sidewalks, and site furnishings.



The UNC Hospitals Station includes special considerations for the end of the line operator break room, restroom, and communications room.

The Ninth Street Station is considered an aerial station even though it is on retained fill. It is elevated with additional retaining walls and structural requirements and includes elevators and stairs.

20.06 Automobile parking multi-story structure – The Alston Avenue Station parking garage is based on a typical garage cost per square foot and includes added considerations for the end of the line operator break room, restroom, and communications room. Costs also include considerations for an upgraded façade to provide a community themed appearance. Demolition of existing buildings on the site is included in 40.01.

At-grade parking facilities were modeled from the Leigh Village station parking lot which was estimated in detail to derive a unit price per parking space to include all site development, drainage, paving and parking equipment. This unit price was applied to all other at-grade parking except Friday Center Station where some of the existing parking lot was available to be re-used with some minimal overlay and restriping in all alternatives except C2. Demolition of existing buildings on existing the sites is included in 40.01.

20.07 Elevators, escalators – Elevator costs are high weight capacity hydraulic type and priced to include glass elevator shafts and elevator cabs for public safety.

30.01-30.04 Administration/office building, heavy maintenance, storage, or maintenance of way facility – This facility is estimated as one building of 73,155 SF and the various functions broken out by programmed square feet of operations and administrative (12,148 square feet [sf]), light rail heavy maintenance (39,723 sf), and maintenance of way (21,284 sf). Table 3-1 reflects the costs of building including typical building systems from foundations, pits, and trenches to roof and interior construction and finishes estimated in a typical uniform systems type of estimate. Costs also include all equipment from the space programming document as well as traction power equipment for the yard but exclude the traction power sub-station for the yard. That sub-station is included in the work breakdown structure (WBS) section 50 Systems costs.

30.05 Yard and yard track – The yard track and site work costs are based on the conceptual layout for the single site. Table 3-1 reflects the costs of site development, drainage, utilities, parking and paving, fencing, lighting, track work and turnouts. Costs also include miscellaneous site items for scrap metal bins, trash compactor/recycling, central instrument house, sand dispensing system, and hazardous materials storage shed. Yard costs do not include the overhead contact system or poles for the yard tracks which are included in the SCC 50 Systems costs. Table 3-1 also reflects costs for right-of-way associated with each of the ROMF alternatives, which would be included in SCC 60.01.

40.01 Demolition, clearing, earthwork— This work element includes typical clearing and grubbing for the guideway along the ROW priced per acre, rough and final grading per square yard, and building demolition for the substantial buildings or structures. The per acre unit price for clearing does include removal costs for the miscellaneous items encountered such as sidewalks, curbs, signs, pads, etc.

40.02 Site utilities, utility relocation — Utilities costs are broken into three components, Communication-Gas-Power transmission, Public Water-Sewer, and Storm Drainage. Most utilities were estimated for the C2A/LPA/Trent combination of alternatives and adds or deducts were quantified for the other different combinations.



Communications-Gas-Power

- Communications costs include cabinets, conduits, duct banks, and relocations of cable television to power poles.
- Gas relocation costs include all pipe, casings, fittings, valves and accessories on a \$/LF basis.
 Bore depths are assumed to be 10 feet under tracks.
- Power costs include overhead and underground duct banks, and conduits; a \$1.8 million allowance for relocating 4 large transmission towers; and a \$20 million allowance for the special 44kV liquid gas filled underground transmission circuit along Erwin Road. These two large allowance costs were provided by Duke Energy as budget placeholders.
- Private utility relocation plans and construction are assumed to be performed by the utility owners. Conceptual utility relocation plans were developed as a basis for establishing an allowance for private utilities and for unknown utility relocations that may occur.

Public Water-Sewer

- Water costs assume ductile iron pipe and include all pipe, encasement, fittings, valves, accessories, and corrosion protection.
- Sanitary sewer costs assume all ductile iron pipe and unit prices include all pipe, encasement, fittings, manholes, and accessories.
- Costs do not include the large diameter water main anticipated to be completed by the City of Durham along Pettigrew Street.
- Costs assume necessary relocation of public utilities as a cost to the project.
- Costs include removal and/or sealing abandoned systems.

Drainage:

Storm drainage for UNC to Cameron Boulevard was estimated from preliminary plans and pipe sizes. From Cameron Boulevard to Alston Avenue were modeled on a cost per mile based on data developed for the segment from UNC to Cameron Boulevard. Estimates were adjusted to include additional costs anticipated for these segments. Drainage costs for the guideway are included in the guideway cost per linear foot for each typical section. Costs include removal and/or sealing abandoned pipes.

40.03 Hazardous material, contaminated soil removal/mitigation, ground water treatments — There were 12 high risk sites identified along the alternative alignments, and 37-42 sites requiring additional testing but expected to cause no cost impact. The cost for the 12 sites was a total of \$6.0 million common to all alignment alternatives. In addition, there are two sites each in Alternatives NHC 1 and NHC 2 adding another \$600,000. The alternative ROMF sites include three high risk sites for potential hazardous materials contamination; one at Cornwallis Road and two at Alston Avenue.

40.04 Environmental mitigation – These costs include streams, wetlands, ponds, buffers, and best management practices. All impacts were quantified for each alternative and priced including impacts from parking and the ROMF site. Also included is the mitigation to the golf courses as it is considered a one-time effort for restoring lands.

40.05 Site structures including retaining walls and sound walls – The cost of retaining walls for the guideway are included in the section 10 Guideway and Track Elements. No sound walls are included or anticipated to be required at this time. A \$500,000 allowance is included in case any minor retaining walls or sound walls are required or to expand access into the community.

40.06 Pedestrian / bike access and accommodation, landscaping – Costs include the pedestrian bridges at the UNC Hospitals Station and at the Martin Luther King Jr. Parkway stations (occurs in alternative



NHC-1 only), special ramps, walks and stairs at the Dean Smith Center, pedestrian underpasses at the UNC golf course and 2 immediately north of the Duke golf course, and extension of the pedestrian tunnel west of the Friday Center station. Local sidewalks around the passenger stations are included as part of the station cost.

40.07 Automobile, bus, van access ways including roads, parking lots – This cost element includes all local road construction, whether construction of a new road or reconstruction or widening of an existing road. Road costs are developed from typical sections and provide for complete functioning of the road except for drainage costs, which are included with utilities in SCC 40.02, and traffic signals, which are included in SCC 50.02.

40.08 Temporary facilities – Costs for temporary facilities have been considered within the work items where needed, predominately in the guideway and roadway items.

An allowance of 1.0 percent was applied to cover Art in Public Places based on the following definition as worded in the Art in Public Places design criteria:

"The Triangle Transit budget for art is calculated as one percent of capital construction costs, excluding the cost of aerial structures, the rail operations and maintenance facilities, parking garages and electrical systems components (traction power, supply and distribution, communication and signaling). Professional Services, ROW and vehicles are not considered construction items."

50.01-50.06 Systems – Costs were estimated based on the following:

- <u>50.01 Train control and signals</u>: includes signal house design and construction, block and track circuit design and construction, spare parts, and testing & acceptance
- 50.02 Traffic signals and crossing protection: includes highway crossing warning systems design and construction, roadway traffic signals, and interconnections to the LRT train signals and controls.
- 50.03 Traction power supply/substations: includes 19 pre-packaged traction power substations, associated site improvements, main feeder duct bank and cables, spare parts, testing and acceptance.
- <u>50.04 Traction power distribution:</u> includes poles and foundations, down-guys, head-spans, switches, contact and messenger wires, spares and testing & acceptance.
- 50.05 Communications: includes closed circuit television cameras, variable message signs, public address systems, passenger assist telephones at stations and park-and-ride lots, supervisory control and data acquisition hardware and software, mainline duct bank and fiber optic cable, conduit and cabling at the stations, carrier transmission system, operations control center equipment, spares, testing and acceptance.
- <u>50.06 Fare collection:</u> includes ticket vending machines, two per station, off-platform ticket vending machines at park-and-ride lots, and operating software.

60.01-60.02 Right-of-way, land, existing improvements – Costs were derived from a parcel by parcel evaluation of the preliminary right-of-way lines inclusive of easements for construction. Based on a full or partial taking a cost factor was applied to the assessed value to arrive at a reasonable cost budget. In establishing cost factors, other agencies, including NCDOT real estate representatives, were contacted to establish industry norms. As a result, the following factors were assumed: market value was assumed equal to the 2009 assessed value plus 15 percent; acquisition and relocation cost was assumed to be 35 percent of the market value; legal and condemnation costs were assumed to be 20 percent of the market value. Overall right-of-way costs also included a rough estimate of easements that may be required for utilities and construction based on preliminary utility requirements.



70.01-70.07 Vehicles - Costs assume 17 new light rail vehicles at \$4.5 million per vehicle based on other recent light rail projects. Costs also include 10 non-revenue vehicles and \$400,000 per rail vehicle for spare parts.

80.01-80.08 Professional Services – Costs for each line are a percentage of the construction subtotal for categories 10-50 (FTA worksheet row 52) as follows:

Table 6-1: Professional Services Costs

Item	Description	%
80.01	Project development	5.0%
80.02	Engineering	7.0%
80.03	Project management for design and construction	2.5%
80.04	Construction administration and management	7.0%
80.05	Professional liability and other non-construction insurance	1.0%
80.06	Legal; permits; review fees by other agencies, cities, etc.	2.0%
80.07	Surveys, testing, investigation, inspection	2.0%
80.08	Start up	1.0%



7. Estimate Pricing

For this cost estimate, the heavy civil work item pricing is predominantly historical data from recent Charlotte, N.C. light rail projects' bids, NCDOT bids, and RSMeans cost data, all escalated to present day cost by 3.0 percent annually from the date of the data in necessary.

Some components are priced from material quotes from recent past projects for portions of the architectural work. These items include the elevator glass, station canopies, and parking garage exterior screening. The Alston Avenue station parking garage base unit price is a blended average from RSMeans cost data and financial studies of comparable parking structures conducted by Carl Walker Parking Consultant's

The cost estimate was prepared using Microsoft Excel based on unit price type estimating format with linked spreadsheet files for the various FTA SCCs. The unit prices presented herein all include contractor's markups for labor burdens, taxes, field overheads, overhead, profit, bonds and insurance. The only exceptions are the rail work in SCC 10.09, 10.10 and 10.11. These items are broken down into crews and material, but have all appropriate contractors' markups applied. The SCC 10.12 costs for special track are estimated based on the Charlotte light rail projects' historical bids.



8. Market Conditions/Conclusion

The construction market in general has experienced extremely low inflationary pressures over the past few years beginning in 2009. The market for residential construction has increased to a stronger position recently and traditionally the highway and heavy construction will follow. The Architectural Billings index has shown strength, and contractor profit margins are increasing as well. We expect slightly stronger construction industry growth going forward for the near future causing upward price pressure especially on labor and on select materials. These pressures are somewhat offset by the current low oil and fuel prices; factors that can change quickly. Many construction industry reports predict strong growth for the last half of 2015 and early 2016.

The estimate provided herein is an "Opinion of Probable Capital Costs" for implementation of the project. Attempts have been made to identify all major cost elements with reasonable quantities and current market prices. Major risks associated with limited scope have been identified and allowances made for their anticipated impacts, either within the cost estimate or with allocated contingency. Additionally, a range of plus or minus five percent has been applied to the respective total cost of each alternative which reflects the level of confidence of the estimate based upon 2015 market conditions. The costs stated within this report are subject to escalation due to inflation and construction market conditions.



Appendix A: Opinion of Probable Capital Cost

DURHAM-ORANGE LIGHT RAIL TRANSIT ALTERNATIVES COST SUMMARY BY SCC

All costs in 2015 dollars and include Allocated Contingency

COST ELEMENT	NIII C	C1	C1	C1A	C1A	C1A	C2	C2	C2	C2A	C2A	C2A
COST ELEMENT	NHC-1	NHC-2	NHC-LPA	NHC-1	NHC-2	NHC-LPA	NHC-1	NHC-2	NHC-LPA	NHC-1	NHC-2	NHC-LPA
10 GUIDEWAY & TRACK ELEMENTS (route	\$438,195	\$428,009	\$419,895	\$426,992	\$416,806	\$408,692	\$412,901	\$402,714	\$394,601	\$413,901	\$403,714	\$395,601
miles)												
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	\$47,108	\$48,846	\$49,273	\$48,289	\$50,026	\$50,453	\$50,131	\$51,869	\$52,296	\$49,234	\$50,971	\$51,398
10.04 Guideway: Aerial structure	\$262,901	\$253,205	\$246,469	\$248,737	\$239,041	\$232,305	\$233,925	\$224,229	\$217,493	\$233,925	\$224,229	\$217,493
10.05 Guideway: Built-up fill	\$8,665	\$8,586	\$8,711	\$9,605	\$9,526	\$9,651	\$7,512	\$7,434	\$7,559	\$7,635	\$7,556	\$7,681
10.08 Guideway: Retained cut or fill	\$40,178	\$38,064	\$37,172	\$40,647	\$38,534	\$37,641	\$42,409	\$40,295	\$39,403	\$44,299	\$42,185	\$41,293
10.09 Track: Direct fixation	\$22,958	\$22,325	\$21,199	\$21,701	\$21,067	\$19,941	\$20,545	\$19,912	\$18,786	\$20,545	\$19,912	\$18,786
10.10 Track: Embedded	\$18,270	\$19,691	\$19,893	\$18,270	\$19,691	\$19,893	\$18,294	\$19,716	\$19,917	\$18,294	\$19,716	\$19,917
10.11 Track: Ballasted	\$28,435	\$27,653	\$27,611	\$29,970	\$29,188	\$29,145	\$30,345	\$29,563	\$29,520	\$30,242	\$29,460	\$29,417
10.12 Track: Special (switches, turnouts)	\$9,024	\$8,986	\$8,923	\$9,108	\$9,070	\$9,007	\$9,076	\$9,039	\$8,976	\$9,066	\$9,028	\$8,965
10.13 Track: Vibration and noise dampening	\$657	\$653	\$645	\$667	\$662	\$655	\$663	\$659	\$651	\$662	\$657	\$650
20 STATIONS, STOPS, TERMINALS,	\$126,101	\$125,938	\$126,352	\$126,101	\$125,938	\$126,352	\$119,098	\$118,935	\$119,349	\$117,321	\$117,158	\$117,572
INTERMODAL (number)												
20.01 At-grade station, stop, shelter, mall,	\$42,496	\$42,333	\$42,747	\$42,496	\$42,333	\$42,747	\$45,193	\$45,030	\$45,444	\$45,197	\$45,034	\$45,448
terminal, platform	# 00 7 00	000 700	000 700	040.000	0.10.000	# 40.000	# 40.000	0.10.000	# 40.000			
20.02 Aerial station, stop, shelter, mall,	\$23,732	\$23,732	\$23,732	\$23,732	\$23,732	\$23,732	\$13,936	\$13,936	\$13,936	\$13,936	\$13,936	\$13,936
terminal, platform	# 50.000	# 50.000	# 50.000	Φ50.000	Φ=0.000	# 50.000	054.074	054.074	054.074	# 50.000	# 50.000	# 50.000
20.06 Automobile parking multi-story structure	\$52,289	\$52,289	\$52,289	\$52,289	\$52,289	\$52,289	\$54,071	\$54,071	\$54,071	\$52,289	\$52,289	\$52,289
20.07 Elevators, escalators	\$7,584	\$7,584	\$7,584	\$7,584	\$7,584	\$7,584	\$5,899	\$5,899	\$5,899	\$5,899	\$5,899	\$5,899
		\$0										
30 SUPPORT FACILITIES: YARDS, SHOPS,	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881	\$73,881
ADMIN. BLDGS												
30.01 Administration Building: Office, sales, storage, revenue counting	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132	\$9,132
30.02 Light Maintenance Facility	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30.03 Heavy Maintenance Facility	\$32,755	\$32,755	\$32,755	\$32,755	\$32,755	\$32,755	\$32,755	\$32,755	ֆՍ \$32,755	\$32,755	\$32,755	\$32,755
30.04 Storage or Maintenance of Way Building	\$15,999	\$32,755 \$15,999	\$32,755 \$15,999	\$32,755 \$15,999	\$32,755 \$15,999	\$32,755 \$15,999	\$15,999	\$32,755 \$15,999	\$32,755 \$15,999	\$15,999	\$15,999	\$32,755 \$15,999
30.04 Storage or Maintenance of Way building	क् । उ, ५५५	क् । ७,५५५	क् । ७,५५५	क् १७,५५५	क् १७,५५५	क् १७,७७७	ক । ত, গুগুগু	क् । उ, ५५५	φ10,999	ক । ৩, ৬৬৬	क् । ७,५५५	φ15,999
30.05 Yard and Yard Track	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996	\$15,996

UPDATE(Mar2015)

DURHAM-ORANGE LIGHT RAIL TRANSIT ALTERNATIVES COST SUMMARY BY SCC

All costs in 2015 dollars and include Allocated Contingency

COST ELEMENT	C1 NHC-1	C1 NHC-2	C1 NHC-LPA	C1A NHC-1	C1A NHC-2	C1A NHC-LPA	C2 NHC-1	C2 NHC-2	C2 NHC-LPA	C2A NHC-1	C2A NHC-2	C2A NHC-LPA
40 SITEWORK & SPECIAL CONDITIONS	\$180,987	\$179,487	\$181,011	\$181,784	\$180,284	\$181,808	\$181,859	\$180,359	\$181,883	\$181,150	\$179,651	\$181,174
40.01 Demolition, Clearing, Earthwork	\$4,717	\$4,692	\$4,694	\$4,831	\$4,807	\$4,808	\$4,823	\$4,798	\$4,799	\$4,825	\$4,800	\$4,801
40.02 Site Utilities, Utility Relocation	\$93,991	\$90,517	\$94,996	\$94,189	\$90,715	\$95,193	\$94,101	\$90,627	\$95,105	\$94,696	\$91,222	\$95,700
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments	\$6,600	\$6,600	\$6,000	\$6,600	\$6,600	\$6,000	\$6,600	\$6,600	\$6,000	\$6,600	\$6,600	\$6,000
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks	\$6,600	\$6,799	\$6,825	\$6,601	\$6,799	\$6,826	\$6,689	\$6,888	\$6,914	\$4,755	\$4,954	\$4,980
40.05 Site structures including retaining walls, sound walls	\$650	\$650	\$650	\$650	\$650	\$650	\$650	\$650	\$650	\$650	\$650	\$650
40.06 Pedestrian / bike access and accommodation, landscaping	\$7,132	\$7,132	\$5,008	\$7,132	\$7,132	\$5,008	\$7,132	\$7,132	\$5,008	\$7,132	\$7,132	\$5,008
40.07 Automobile, bus, van accessways including roads, parking lots	\$57,045	\$58,864	\$58,601	\$57,491	\$59,310	\$59,047	\$57,653	\$59,472	\$59,209	\$58,278	\$60,097	\$59,834
40.08 Temporary Facilities and other indirect costs during construction	\$4,252	\$4,233	\$4,237	\$4,290	\$4,271	\$4,276	\$4,212	\$4,193	\$4,197	\$4,215	\$4,196	\$4,201
50 SYSTEMS	\$210,725	\$207,941	\$206,905	\$212,962	\$210,178	\$209,142	\$212,540	\$209,755	\$208,719	\$212,760	\$209,975	\$208,939
50.01 Train control and signals	\$43,064	\$41,779	\$41,301	\$43,702	\$42,417	\$41,938	\$43,459	\$42,175	\$41,696	\$43,382	\$42,098	\$41,619
50.02 Traffic signals and crossing protection	\$21,365	\$22,616	\$23,084	\$21,599	\$22,850	\$23,318	\$21,938	\$23,189	\$23,657	\$22,400	\$23,651	\$24,119
50.03 Traction power supply: substations	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493	\$45,493
50.04 Traction power distribution: catenary and third rail	\$30,960	\$30,037	\$29,692	\$31,419	\$30,495	\$30,151	\$31,244	\$30,321	\$29,977	\$31,189	\$30,266	\$29,921
50.05 Communications	\$61,263	\$59,436	\$58,754	\$62,170	\$60,343	\$59,661	\$61,825	\$59,998	\$59,316	\$61,716	\$59,888	\$59,207
50.06 Fare collection system and equipment	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580	\$8,580
Construction Subtotal (10 - 50)	\$1,029,890	\$1,015,256	\$1,008,044	\$1,021,721	\$1,007,088	\$999,875	\$1,000,278	\$985,645	\$978,432	\$999,013	\$984,380	\$977,167

DURHAM-ORANGE LIGHT RAIL TRANSIT ALTERNATIVES COST SUMMARY BY SCC

All costs in 2015 dollars and include Allocated Contingency

COST ELEMENT	C1 NHC-1	C1 NHC-2	C1 NHC-LPA	C1A NHC-1	C1A NHC-2	C1A NHC-LPA	C2 NHC-1	C2 NHC-2	C2 NHC-LPA	C2A NHC-1	C2A NHC-2	C2A NHC-LPA
OGGI ELEMENT	MIC 1	MIC 2	MIC LI A	MIC 1	11110 2	MICLIA	IIIIC I	MIC 2	MICLIA	MIC 1	11110 2	MIC LI A
60 ROW, LAND, EXISTING IMPROVEMENTS	\$163,150	\$155,455	\$154,879	\$168,804	\$161,110	\$160,534	\$161,076	\$153,381	\$152,805	\$157,594	\$149,900	\$149,324
60.01 Purchase or lease of real estate	\$127,162	\$121,165	\$120,716	\$131,570	\$125,572	\$125,123	\$125,546	\$119,549	\$119,100	\$122,832	\$116,835	\$116,386
60.02 Relocation of existing households and	\$35,987	\$34,290	\$34,163	\$37,235	\$35,537	\$35,410	\$35,530	\$33,833	\$33,706	\$34,762	\$33,065	\$32,938
businesses						. ,	,			. ,		
70 VEHICLES (number)	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400	\$92,400
70.01 Light Rail	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150	\$84,150
70.02 Heavy Rail	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70.03 Commuter Rail	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70.04 Bus	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70.05 Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
70.06 Non-revenue vehicles	\$770	\$770	\$770	\$770	\$770	\$770	\$770	\$770	\$770	\$770	\$770	\$770
70.07 Spare parts	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480	\$7,480
80 PROFESSIONAL SERVICES (applies to Cats.		\$237,553	\$235,860	\$238,984	\$235,676	\$233,982	\$234,037	\$230,728	\$229,035	\$233,744	\$230,435	\$228,741
80.01 Project Development	\$43,793	\$43,192	\$42,884	\$43,452	\$42,850	\$42,542	\$42,552	\$41,951	\$41,643	\$42,499	\$41,897	\$41,589
80.02 Engineering	\$61,310	\$60,468	\$60,037	\$60,832	\$59,990	\$59,559	\$59,573	\$58,731	\$58,300	\$59,498	\$58,656	\$58,225
80.03 Project Management for Design and	\$21,897	\$21,596	\$21,442	\$21,726	\$21,425	\$21,271	\$21,276	\$20,975	\$20,821	\$21,249	\$20,949	\$20,795
Construction												
80.04 Construction Administration &	\$61,310	\$60,468	\$60,037	\$60,832	\$59,990	\$59,559	\$59,573	\$58,731	\$58,300	\$59,498	\$58,656	\$58,225
Management												
80.05 Professional Liability and other Non-	\$8,759	\$8,638	\$8,577	\$8,690	\$8,570	\$8,508	\$8,510	\$8,390	\$8,329	\$8,500	\$8,379	\$8,318
Construction Insurance												
80.06 Legal; Permits; Review Fees by other	\$17,517	\$17,277	\$17,153	\$17,381	\$17,140	\$17,017	\$17,021	\$16,780	\$16,657	\$17,000	\$16,759	\$16,636
agencies, cities, etc.												
80.07 Surveys, Testing, Investigation,	\$17,517	\$17,277	\$17,153	\$17,381	\$17,140	\$17,017	\$17,021	\$16,780	\$16,657	\$17,000	\$16,759	\$16,636
Inspection												
80.08 Start up	\$8,759	\$8,638	\$8,577	\$8,690	\$8,570	\$8,508	\$8,510	\$8,390	\$8,329	\$8,500	\$8,379	\$8,318
Subtotal (10 - 80)	\$1,526,301	\$1,500,665	\$1,491,183	\$1,521,909	\$1,496,273	\$1,486,791	\$1,487,791	\$1,462,15 4	\$1,452,672	\$1,482,751	\$1,457,114	\$1,447,633
90 UNALLOCATED CONTINGENCY	\$91,578	\$90,040	\$89,471	\$91,315	\$89,776	\$89,207	\$89,267	\$87,729	\$87,160	\$88,965	\$87,427	\$86,858
Subtotal (10 - 90)	\$1,617,879	\$1,590,705	\$1,580,654	\$1,613,224	\$1,586,049	\$1,575,999	\$1,577,058	\$1,549,883	\$1,539,833	\$1,571,716	\$1,544,541	\$1,534,491
100 FINANCE CHARGES	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Project Cost (10 - 100)	\$1,617,879	\$1,590,705	\$1,580,654	\$1,613,224	\$1,586,049	\$1,575,999	\$1,577,058	\$1,549,883	\$1,539,833	\$1,571,716	\$1,544,541	\$1,534,491

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1-NHC-1
EIS (Preliminary Estimate)

(Rev-Mar2015)

	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year Dollars	Base Year Dollars	YOE Dollars
		Dollars w/o Contingency	Dollars Allocated	Dollars TOTAL	Dollars Unit Cost	Percentage	Percentage	Total (X000)
		(X000)	Contingency	(X000)	(X000)	of Construction	of Total	(71000)
			(X000)			Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.19	340,025	98,170	438,195 0	\$25,497	43%	27%	0
10.01 Guideway: At-grade exclusive right-of-way10.02 Guideway: At-grade semi-exclusive (allows cross-traffic	8.21	37,686	9,422	47,108	\$5,741			0
10.03 Guideway: At-grade in mixed traffic	0.21	37,000	3,422	0	ψ3,741			0
10.04 Guideway: Aerial structure	4.46	202,232	60,669	262,901	\$58,944			0
10.05 Guideway: Built-up fill	1.73	6,932	1,733	8,665	\$5,010			0
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel	0.70	00.440	0	0	# 11.000			0
10.08 Guideway: Retained cut or fill 10.09 Track: Direct fixation	2.79	32,142 17,660	8,036 5,298	40,178 22,958	\$14,398			0
10.10 Track: Embedded		14,054	4,216	18,270				0
10.11 Track: Ballasted		21,873	6,562	28,435				0
10.12 Track: Special (switches, turnouts)		6,941	2,082	9,024				0
10.13 Track: Vibration and noise dampening		505	152	657				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (num		98,610	27,491	126,101	\$7,418	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	14	32,689	9,807	42,496	\$3,035			0
20.02 Aerial station, stop, shelter, mall, terminal, platform20.03 Underground station, stop, shelter, mall, terminal, platform	3	18,255	5,477 0	23,732	\$7,911			0
20.04 Other stations, landings, terminals: Intermodal, ferry, ti			0	0				0
20.05 Joint development	, , , , ,		0	0				0
20.06 Automobile parking multi-story structure		41,831	10,458	52,289				0
20.07 Elevators, escalators		5,834	1,750	7,584				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLD		56,832	17,049	73,881	\$4,299	7%	5%	0
30.01 Administration Building: Office, sales, storage, revenue	e counting	7,024	2,107	9,132				0
30.02 Light Maintenance Facility 30.03 Heavy Maintenance Facility		25,196	0 7,559	0 32.755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
40 SITEWORK & SPECIAL CONDITIONS	17.19	135,770	45,217	180,987	\$10,531	18%	11%	0
40.01 Demolition, Clearing, Earthwork		3,494	1,223	4,717				0
40.02 Site Utilities, Utility Relocation	1.	68,110	25,882	93,991				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground wa		4,400	2,200 1,523	6,600 6,600				0
 40.04 Environmental mitigation, e.g. wetlands, historic/archeo 40.05 Site structures including retaining walls, sound walls 	l Jogic, parks	5,077 500	1,523	650				0
40.06 Pedestrian / bike access and accommodation, landsca	ping	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, park		45,636	11,409	57,045				0
40.08 Temporary Facilities and other indirect costs during cor	nstruction	3,271	981	4,252				0
50 SYSTEMS	17.19	165,001	45,725	210,725	\$12,261	20%	13%	0
50.01 Train control and signals		33,126	9,938 3,561	43,064 21,365				0
50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations		17,804 37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		25,800	5,160	30,960				0
50.05 Communications		43,759	17,504	61,263				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	17.19	796,238	233,652	1,029,890	\$59,925	100%	64%	0
60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate	17.19	125,500 97,817	37,650 29,345	163,150 127,162	\$9,493		10%	0
60.02 Relocation of existing households and businesses		27,683	8,305	35,987				0
70 VEHICLES (number)	44	84,000	8,400					
70.01 Light Rail		0-1,000		92,400	\$2,100		6%	0
	17	76,500	7,650	92,400 84,150	\$2,100 \$4,950		6%	0
70.02 Heavy Rail	17						6%	
70.02 Heavy Rail 70.03 Commuter Rail	1/			84,150 0 0			6%	0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus	17			84,150 0 0 0			6%	0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other		76,500	7,650	84,150 0 0 0 0	\$4,950		6%	0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles	10			84,150 0 0 0			6%	0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other	10	76,500	7,650	84,150 0 0 0 0 0 0 770	\$4,950 \$77	23%	6% 15%	0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development	10	76,500 700 6,800 218,965 39,812	7,650 70 680 21,897 3,981	84,150 0 0 0 0 770 7,480 240,862 43,793	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering	10	76,500 700 6,800 218,965 39,812 55,737	7,650 70 680 21,897 3,981 5,574	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	10	76,500 700 6,800 218,965 39,812 55,737 19,906	7,650 70 680 21,897 3,981 5,574 1,991	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737	7,650 70 680 21,897 3,981 5,574 1,991 5,574	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.07 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737	7,650 70 680 21,897 3,981 5,574 1,991 5,574	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities,	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 19,906 215,925 15,925	7,650 70 680 21,897 3,981 5,574 1,991 5,574 1,592 1,592	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 8,759 1,526,301	\$4,950 \$77 \$440	23%	15%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	10 17 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 8,759 1,526,301 91,578	\$4,950 \$77 \$440 \$14,015	23%	15% 94% 6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	10 17 17.19	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 17,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517	\$4,950 \$77 \$440 \$14,015	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	10 17 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 8,759 1,526,301 91,578 1,617,879 0	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	10 17 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 17,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517 1,517	\$4,950 \$77 \$440 \$14,015	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	10 17 17.19 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 17,517 1,526,301 91,578 1,617,879 0	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17.19 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 1,7517 8,759 1,7517 8,759 1,526,301 91,578 1,617,879 0 1,617,879 24.63% 7.48% 32.10%	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	10 17 17.19 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 8,759 17,517 17,517 1,517 8,759 1,526,301 91,578 1,617,879 0 1,617,879 0 1,617,879 24,63% 7,48%	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	10 17 17.19 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 1,7517 8,759 1,7517 8,759 1,526,301 91,578 1,617,879 0 1,617,879 24.63% 7.48% 32.10%	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insur 80.06 Legal; Permits; Review Fees by other agencies, cities, 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	10 17 17.19 17.19 ance etc.	76,500 700 6,800 218,965 39,812 55,737 19,906 55,737 7,962 15,925 7,962	7,650 70 680 21,897 3,981 5,574 1,991 5,574 796 1,592 1,592 796	84,150 0 0 0 0 770 7,480 240,862 43,793 61,310 21,897 61,310 1,7517 8,759 1,7517 8,759 1,526,301 91,578 1,617,879 0 1,617,879 24.63% 7.48% 32.10%	\$4,950 \$77 \$440 \$14,015 \$88,809 \$94,138	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1-NHC-2
EIS (Preliminary Estimate)

15		Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
10 QUIDENIN & TRACK ELEMENTS (rouse miles) 1,000							Dollars Percentage	Dollars Percentage	
10 GUIDEWAY & TRACK ELEMENTS (route miles) 17.877 362,170 66333 428,090 535,076 479, 279, 0 1 1 1 1 1 1 1 1 1									(X000)
1001 Guiderey Agrade and exclusive right-of-way			(71000)		(71000)	(71000)			
10.02 Guidewey, Ng gold semi-enclaring fallows or sensitratified 4.34 114,773 56,439 755,200 601,300 0 0 0 0 0 0 0 0 0	10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.07	332,176	95,833	428,009	\$25,076	42%	27%	0
19.03 Guideneys, Argade in market serfic 4.34 19.4773 5.6432 325.205 565.302 0 0 0 0 0 0 0 0 0	10.01 Guideway: At-grade exclusive right-of-way				0				0
19.00 Guideeny District 19.177 65.96 25.00 65.50 20.00 19.177 19.17	The state of the s	8.40	39,076			\$5,816			
1,000 Guidewey Undergrand of & Over									
10.08 Cultivery, Detailmed and a Kovern	·								
10.07 Cultiformy Linderground surveil 2.02 3.04 cit 7.753 38,064 \$14,029 0 0 0 0 0 0 0 0 0		1.71	6,869			\$5,011			
10.00 Goldeney, Retamed out or file 2									
10.00 Track: Diseased	, ,	2 62	30 451			\$14 528			
10.10 Trace: Episealized 15.147 4.544 19.891		2.02				ψ14,320			
10.11 Track: Spalesed (withces, burrouts)									
10.12 Track: Special (winches, surrouss) 10.13 Track: Visionia and noise dampoining 20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 21 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 22 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 23 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 24 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 24 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 24 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 25 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 26 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 27 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 27 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 28 STATIONS, STOPS, TERMINALS, Numb 28 STATIONS, STOPS, TERMINALS, Numb 28 STATIONS, STOPS, TERMINALS, Numb 29 STATIONS, STOPS, STOPS, TERMINALS, Numb 29 STATIONS, STOPS,									
10.13 Track Vibration and notice dempending 502 151 653 87,468 12% 8% 0									
2001 Advanced tation, stop, shelter, mail, terminal, plantom 14 32.564 9.769 43.333 \$3.024 0 0 0 0 0 0 0 0 0			502	151	653				0
20.02 Aerial sations, stop, shettle, mail, terminal, platform 3 10.256 5.477 23.732 37.911 0 0 0 0 0 0 0 0 0	20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	98,484	27,454	125,938	\$7,408	12%	8%	0
20.00 Undeerground station, steps, shetter, matt, terminal, platform 0 0 0 0 0 0 0 0 0	20.01 At-grade station, stop, shelter, mall, terminal, platform	14	32,564	9,769	42,333	\$3,024			0
20.00 John development 20.00 Automobile parking multi-andy structure 20.00 Automobile parking multi-andy structure 41,831 10,458 52,239 0 0 0 0 0 0 0 0 0	20.02 Aerial station, stop, shelter, mall, terminal, platform	3	18,255	5,477	23,732	\$7,911			0
20.06 Automoble parking multi-story structure 20.07 Elevators, escalators 30.10 February (1998) 1	20.03 Underground station, stop, shelter, mall, terminal, platfor	m							
20.06 Automobile parking multi-story structure 41,831 10,658 52,289 0 0 0 0 0 0 0 0 0		lley, etc.							
20.07 Elevators cocalators	·		4						
39.04PORT FACILITIES: YARDS, SHOPS, ADMIN, BLDG 707 56.8322 17.049 73.881 \$4.328 77% 57% 0 0 0 0 0 0 0 0 0	The state of the s								
30.01 Administration Building: Office, sales, storage, revenue counting		17.07				£4.000	70/	E0/	
3.03.0 Elay Maintenance Facility 3.04 Storage or Maintenance of Way Building 3.05 Yard and Yard Track 4.05 Elegandrian Coloration (1998) 4.05 Stream (1998) 4.06 Size traction Clearing, Enthwork 4.07 Authorition, Clearing, Enthwork 4.08 STEVALC CONDITIONS 4.09 Size Utilities, Utility Relocation 4.00 Haz. marti, Containd soil emoval/miligation, gound water treatments 4.00 Haz. marti, Containd soil emoval/miligation, gound water treatments 4.00 Size tractives including relating walls, sound walls 4.00 Size tractives including relating walls, sound walls 4.00 Fedestrian / bike access and accommodation, landscaping 5.00 Traction prover supply; substations 5.00 Traction power supply; substations 5.00 Traction power supply; substations 5.00 Traction power supply; substations 5.00 Ferro colorition and signals 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition power distribution: catenary and third rail 5.00 Ferro colorition system and equipment 5.00 Ferro colorition of existing households and businesses 5.00 Ferro colorition of existing households and businesses 6.00 Ferro colorition of existing households and businesses 7.00 Ferro colorition of existing households and businesses 7.00 Ferro colorition of existing households and businesses 7.00 Ferro colorition development 7.00 Ferro c						\$4,328	7%	5%	
30.00 Heavy Maintenance Planity 25.196 7.599 32.755 0 0 0 0 0 0 0 0 0		L	1,024						_
30.05 Yard and Yard Track 12.307 3.892 15.999 0 0 0 0 0 0 0 0 0	The state of the s		25,196						
30.05 Yard and Yard Track					. ,				
40 STEWORK & SPECIAL CONDITIONS 40.01 Demolition, Clearing, Earthwork 40.01 Demolition, Clearing, Earthwork 40.01 Demolition, Clearing, Earthwork 40.03 Haz, and, contant 3 soli removal/miligation, ground water treatments 40.03 Haz, and, contant 3 soli removal/miligation, ground water treatments 40.03 Haz, and, contant 3 soli removal/miligation, e.g. welfanck, historic/archaelogic, parks 40.05 Ste truttures including retaining walls a cond water 40.05 Ste truttures including retaining walls a cond water 40.05 Ste truttures including retaining walls a cond water 40.06 Ste truttures including retaining walls a cond water 40.07 Automobili, bus, van a cacess and accommodation, inadiscaping 40.08 Temporary Facilities and other indirect costs during construction 50.07 Temporary Facilities and other indirect costs during construction 50.07 SYSTEMS 50.01 Train control and signals 50.01 Train control and signals 50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations 50.04 Traction power distribution: caterany and third rail 50.05 Fare sciencion system and equipment 50.05 Fare sciencion system and equipment 50.05 Fare sciencion system and equipment 50.06 Fare sciencion system and equipment 50.07 Fare scienci									
40.0 Site bittings, Utilizing Littling Recordance 40.03 Site bittings, Utilizing Littling Recordance 40.03 Site districtures including retaining walls, sound walls 40.05 Perdestinal plake access and accommodation, landscaping 40.07 Automobile, bus, van accessweys including roads, parking lots 40.08 Pedestinal plake access and accommodation, landscaping 40.07 Automobile, bus, van accessweys including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 50.08 Train control and signals 50.01 Train control and signals 50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations 50.04 Traction power supply: substations 50.05 Fare Collection system and equipment 50.06 Fare Collection system and equipment 50.06 Fare Collection system and equipment 50.07 Central Cortrol 60.07 Central Cortro		17.07		-		\$10.516	18%	11%	
4.0.0 Haz. mart. contain'd soil removal/mitigation, ground water treatments 4.0.0 E pricentain y listed to the state of th				1,216	•	, ,,,,			0
40.06 Site structures including retaining walls, out walls 5.230 1.569 6.799 0 0 0 0 0 0 0 0 0	40.02 Site Utilities, Utility Relocation		65,592	24,925	90,517				0
4.00.6 Site structures including retaining wells, sound walls 500 150 500 150 0 0 0 0 0 0 0 0 0	40.03 Haz. mat'l, contam'd soil removal/mitigation, ground wat	er treatments	4,400	2,200	6,600				0
40.00 Pedestrian / Dike access and accommodation, landscaping 40.07 Automobile, but, van accessways including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 3.266 977 4.233 50.05 YSTEMS 10.00 10.2380 40.08 10.00 10.2380 40.08 10.00	40.04 Environmental mitigation, e.g. wetlands, historic/archeol	ogic, parks							
40.07 Automobile, bus, van accessways including roads, parking lots 47.091 11.773 58.864 0 0 0 0 0 0 0 0 0	40.05 Site structures including retaining walls, sound walls								
40.08 Temporary Facilities and other indirect costs during construction 3.256 977 4.233	· · · · · · · · · · · · · · · · · · ·	-							
17.07 162,980 44,961 207,941 \$12,183 20% 13% 0									
Spoint Train control and signals Spoint						640.400	000/	400/	
18.847 3.7e9 22.616 0 0 0 0 0 0 0 0 0		17.07			•	\$12,183	20%	13%	
37.911 7.582 45.493 0 0 0 0 0 0 0 0 0									
Solid Traction power distribution: catenary and third rail Solid									
Solic Communications									
Construction Subtotal (10 - 50)									0
Construction Subtotal (10 - 50)									
17.07 119.581 35.874 155,455 \$9,108 0 0 0 0 0 0 0 0 0				0	0				0
60.01 Purchase or lease of real estate 93.204 27.961 121.165 0 0 0 0 0 0 0 0 0	Construction Subtotal (10 - 50)	17.07	785,300	229,956	1,015,256	\$59,481	100%	64%	0
Columber	60 ROW, LAND, EXISTING IMPROVEMENTS	17.07	119,581	35,874	155,455	\$9,108		10%	0
	60.01 Purchase or lease of real estate								
70.01 Light Rail 70.02 Heavy Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 10 70.07 70 770 \$77 70.07 Spare parts 17 6,800 680 7,480 \$440 0 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 90 UNALLOCATED CONTINGENCY 17 OF Start Poliars w/o Contingency 18 OF Start Poliars w/o Contingency 19 Unallocated Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 10 Included Contingency as % of Base Yr Dollars w/o Contingency 11 Included Contingency as % of Subtotal (10 - 80) 11 Included Contingency 12 In	•								
Total Peranger Total Project Design and Construction Insurance Subtotal (10 - 80) Subtotal (10 - 80) Subtotal (10 - 80) Subtotal (10 - 90) Total Project Cost (10 - 100) Total Project Cost per Mile (X000) Source (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Source (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Source (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Source (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Source (X000) Total Project Cost per Mile (X000) Total Project Cost per Mile (X000) Source (X000) Source (X000) Total Project Cost per Mile (X000) Source (X000) So	70 VEHICLES (number)							6%	
70.03 Commuter Rail 70.04 Bus 70.05 Other 70.05 Other 70.06 Non-revenue vehicles 10 700 70 770 770 \$77 70.07 Spare parts 17 6,800 680 7,480 \$440 0 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,706 1,571 17,277 80.08 Start up 17,07 1,204,839 295,826 1,500,665 \$87,919 94% 0 90 UNALLOCATED CONTINGENCY 90 UNALLOCATED CONTINGENCY 17,07 1,204,839 295,826 1,500,665 \$87,919 94% 0 90 UNALLOCATED CONTINGENCY 17,07 1,204,839 295,826 1,500,665 \$87,919 94% 0 100 FINANCE CHARGES 0 17,07 1,590,705 \$93,194 100% 0 100 FINANCE CHARGES 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		17	76,500	7,650		\$4,950			
70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 10 70.07 70 770 \$77 800 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 UNALLOCATED CONTINGENCY 80 UNALLOCATED CONTINGENCY 90 UNALLOCATED CONTINGENCY 90 UNALLOCATED CONTINGENCY 91 17.07 1,204,839 295,826 1,590,665 \$87,919 94% 0.990 UNALLOCATED CONTINGENCY 91 17.07 1,590,705 \$93,194 100% 0.900 100 FINANCE CHARGES 90 10 17.07 1,590,705 \$93,194 100% 0.900 100 FINANCE CHARGES 90 10 17.07 1,590,705 \$93,194 100% 0.900 100 FINANCE CHARGES 90 10 17.07 1,590,705 \$93,194 100% 0.900 100 FINANCE CHARGES 90 10 10 10 10 10 10 10 10 10 10 10 10 10									
70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 VINALLOCATED CONTINGENCY 80.00 Subtotal (10 - 80) 80.01 Project Cost (10 - 100) 17.07 1,204,839 295,826 1,500,665 \$87,919 94% 0 100 FINANCE CHARGES 90 17.07 1,590,705 \$93,194 100% 0 100 FINANCE CHARGES 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			 						
Tourish			—						
17		10	700	70		\$77			
17.07 215,958 21,596 237,553 \$13,918 23% 15% 0									
80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 UNALLOCATED CONTINGENCY 80 UNALLOCATE							23%	15%	
80.02 Engineering 80.03 Project Management for Design and Construction 19,633 1,963 21,596 0 80.04 Construction Administration & Management 54,971 5,497 60,468 0 0 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,706 1,571 17,277 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 17,07 1,204,839 17,07 1,204,839 17,07 1,204,839 17,07 1,590,705 1		77.131				Ţ. 0,010		.070	
80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.08 Start up 80.08 Start up 80.08 Subtotal (10 - 80) 80 UNALLOCATED CONTINGENCY 80 UN									0
80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,706 1,571 17,277 80.07 Surveys, Testing, Investigation, Inspection 15,706 1,571 17,277 80.08 Start up 15,706 1,571 17,277 80.08 Start up 17,853 785 8,638 90 90 UNALLOCATED CONTINGENCY 90,040 6% 90 UNALLOCATED CONTINGENCY 90,040 6% 90 UNALLOCATED CONTINGENCY 90,040 6% 90 UNALLOCATED CONTINGENCY 17,07 1,590,705 \$93,194 100% 90 UNALCOCATED CONTINGENCY 90,040 6% 90 UNALCOCATED CONTINGENCY 90,040 90,040 6% 90 UNALCOCATED CONTINGENCY 90,040 90									0
80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,706 1,571 17,277 80.08 Start up 7,853 785 8,638 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 90,040 6% 90,040 6% 90,040 6% 90,040 6% 90,040 6% 90,040 6% 90,040	80.04 Construction Administration & Management		54,971	5,497	60,468				0
80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,706 1,571 17,277 7,853 785 8,638 80 0 80 UNALLOCATED CONTINGENCY 90,040 6% 0 8ubtotal (10 - 90) 17,07 1,204,839 295,826 1,500,665 \$87,919 94% 0 90,040 6% 0 8ubtotal (10 - 90) 17,07 1,590,705 \$93,194 100% 0 100 FINANCE CHARGES 0 0 0% 0 Total Project Cost (10 - 100) 17,07 1,590,705 \$93,194 100% 0 8ubtotal Contingency as % of Base Yr Dollars w/o Contingency 17,07 1,590,705 \$93,194 100% 0 8ubtotal Contingency as % of Base Yr Dollars w/o Contingency 17,47% 7.47% 17,010 Contingency as % of Base Yr Dollars w/o Contingency 18,100									
80.08 Start up		tc.							
Subtotal (10 - 80) 17.07 1,204,839 295,826 1,500,665 \$87,919 94% 0									
90 UNALLOCATED CONTINGENCY 90,040 6% 0 Subtotal (10 - 90) 17.07 1,590,705 \$93,194 100% 0 100 FINANCE CHARGES 0 0 0 0 0 0 0 Total Project Cost (10 - 100) 17.07 1,590,705 \$93,194 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency 24.55% Unallocated Contingency as % of Base Yr Dollars w/o Contingency 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	•	17.0				ACT 2::		6.10	
17.07		17.07	1,204,839	295,826		\$87,919			
100 FINANCE CHARGES		17.07				¢02.404			
Total Project Cost (10 - 100)		17.07				 р93,194			
Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000)		17.07			_	\$03.104			
Unallocated Contingency as % of Base Yr Dollars w/o Contingency 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	• • • • • • • • • • • • • • • • • • • •	17.07				φ93,194		100%	U
Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0									
Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0									
YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Unallocated Contingency as % of Subtotal (10 - 80)								
YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	YOE Construction Cost per Mile (X000)								\$0
YOE Total Project Cost per Mile (X000) \$0	YOE Total Project Cost per Mile Not Including Vehicles (X000)								
	YOE Total Project Cost per Mile (X000)								\$0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1-NHC-LPA
EIS (Preliminary Estimate)

		- 1/	- 1/			D V	D V	V/0 = 0 II
	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year Dollars	Base Year Dollars	YOE Dollars
		Dollars w/o Contingency	Dollars Allocated	Dollars TOTAL	Dollars Unit Cost	Percentage	Percentage	Total (X000)
		(X000)	Contingency	(X000)	(X000)	of Construction	of Total	(71000)
		(******)	(X000)	(* 1555)	(******)	Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	16.87	325,924	93,971	419,895	\$24,886	42%	27%	0
10.01 Guideway: At-grade exclusive right-of-way				0	, ,,,,,,,			0
10.02 Guideway: At-grade semi-exclusive (allows cross-t	traffic) 8.47	39,418	9,855	49,273	\$5,819			0
10.03 Guideway: At-grade in mixed traffic	, i		0	0	¥ 2 / 2			0
10.04 Guideway: Aerial structure	4.12	189,592	56,878	246,469	\$59,847			0
10.05 Guideway: Built-up fill	1.74	6,969	1,742	8,711	\$5,008			0
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.55	29,737	7,434	37,172	\$14,588			0
10.09 Track: Direct fixation		16,307	4,892	21,199				0
10.10 Track: Embedded		15,302	4,591	19,893				0
10.11 Track: Ballasted		21,239	6,372	27,611				0
10.12 Track: Special (switches, turnouts)		6,864	2,059	8,923				0
10.13 Track: Vibration and noise dampening		496	149	645				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (r	numb 17	98,803	27,549	126,352	\$7,432	13%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platfor		32,882	9,865	42,747	\$3,053	1070	0,70	0
20.02 Aerial station, stop, shelter, mall, terminal, platform		18,255	5,477	23,732	\$7,911			0
20.03 Underground station, stop, shelter, mall, terminal,		10,200	0	0	Ψίζοιι			0
20.04 Other stations, landings, terminals: Intermodal, fel			0	0				0
20.05 Joint development	.,,y, o.c.		0	0				0
20.06 Automobile parking multi-story structure		41,831	10,458	52,289				0
20.07 Elevators, escalators		5,834	1,750	7,584				0
	RI DG 16 97	56,832	17.049	73,881	\$4.270	7%	5%	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. E		7,024	2,107	9,132	\$4,379	1 70	370	0
30.01 Administration Building: Office, sales, storage, rev	l counting	1,024	0	9,132				0
30.02 Light Maintenance Facility		25,196	7,559	32,755				0
30.03 Heavy Maintenance Facility 30.04 Storage or Maintenance of Way Building								0
30.04 Storage or Maintenance of Way Building		12,307 12,305	3,692 3,691	15,999 15,996				0
30.05 Yard and Yard Track	10.07		-		640.700	400/	440/	
40 SITEWORK & SPECIAL CONDITIONS	16.87	135,915	45,097	181,011	\$10,728	18%	11%	0
40.01 Demolition, Clearing, Earthwork		3,477 68,837	1,217 26,158	4,694 94,996				0
40.02 Site Utilities, Utility Relocation								0
40.03 Haz. mat'l, contam'd soil removal/mitigation, groun		4,000	2,000	6,000				
40.04 Environmental mitigation, e.g. wetlands, historic/ar		5,250 500	1,575 150	6,825 650				0
40.05 Site structures including retaining walls, sound wal								
40.06 Pedestrian / bike access and accommodation, land		3,710	1,298	5,008				0
40.07 Automobile, bus, van accessways including roads,		46,881	11,720	58,601				0
40.08 Temporary Facilities and other indirect costs during		3,260	978	4,237				0
50 SYSTEMS	16.87	162,228	44,676	206,905	\$12,262	21%	13%	0
50.01 Train control and signals		31,770	9,531	41,301				0
50.02 Traffic signals and crossing protection		19,237	3,847	23,084				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		24,744	4,949	29,692				0
50.05 Communications		41,967	16,787	58,754				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	16.87	779,701	228,343	1,008,044	\$59,743	100%	64%	0
60 ROW, LAND, EXISTING IMPROVEMENTS	16.87	119,138	35,741	154,879	\$9,179		10%	0
60.01 Purchase or lease of real estate		92,859	27,858	120,716				0
60.02 Relocation of existing households and businesses		26,279	7,884	34,163				
70 VEHICLES (number)								0
	44	84,000	8,400	92,400	\$2,100		6%	0
70.01 Light Rail	44 17	84,000 76,500		92,400 84,150	\$2,100 \$4,950		6%	0 0 0
70.01 Light Rail 70.02 Heavy Rail			8,400	92,400 84,150 0			6%	0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail			8,400	92,400 84,150 0			6%	0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus			8,400	92,400 84,150 0 0			6%	0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail			8,400	92,400 84,150 0			6%	0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus			8,400	92,400 84,150 0 0			6%	0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other	17	76,500	8,400 7,650	92,400 84,150 0 0 0	\$4,950		6%	0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles	17 10 17	76,500	8,400 7,650 70	92,400 84,150 0 0 0 0 0 770	\$4,950 \$77	23%	6%	0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts	17 10 17	76,500 700 6,800	8,400 7,650 70 680	92,400 84,150 0 0 0 0 0 770 7,480	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5	17 10 17	76,500 700 6,800 214,418	70 680 21,442	92,400 84,150 0 0 0 0 770 7,480 235,860	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development	17 10 17	76,500 700 6,800 214,418 38,985	70 680 21,442 3,899	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering	17 10 17	76,500 700 6,800 214,418 38,985 54,579	70 680 21,442 3,899 5,458	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493	70 680 21,442 3,899 5,458 1,949	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579	70 680 21,442 3,899 5,458 1,949 5,458	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594	70 680 21,442 3,899 5,458 1,949 5,458 780 1,559	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 8,577 17,153	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594	70 680 21,442 3,899 5,458 1,949 5,458 780	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153	\$4,950 \$77 \$440	23%		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153	\$4,950 \$77 \$440 \$13,978	23%	15%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153 8,577 1,491,183	\$4,950 \$77 \$440	23%	15%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	10 17 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153 17,153 8,577 1,491,183	\$4,950 \$77 \$440 \$13,978	23%	15% 94% 6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	17 10 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 7770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153 17,153 8,577 1,491,183 89,471 1,580,654	\$4,950 \$77 \$440 \$13,978	23%	15% 94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	10 17 17 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17 10 17 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0 1,580,654	\$4,950 \$77 \$440 \$13,978	23%	15% 94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7780 235,860 42,884 60,037 21,442 60,037 8,577 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0 1,580,654 24,55%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen Unallocated Contingency as % of Base Yr Dollars w/o Contingen	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153 17,153 18,577 1,491,183 89,471 1,580,654 0 1,580,654 0 1,580,654 7,47%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen Unallocated Contingency as % of Base Yr Dollars w/o Contingen	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0 1,580,654 24,55% 7,47% 32,02%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153 17,153 18,577 1,491,183 89,471 1,580,654 0 1,580,654 0 1,580,654 7,47%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 8,577 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0 1,580,654 24,55% 7,47% 32,02%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-5 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction I 80.06 Legal; Permits; Review Fees by other agencies, ci 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingen Unallocated Contingency as % of Base Yr Dollars w/o Contingen	17 10 17 16.87 16.87 16.87 16.87	76,500 700 6,800 214,418 38,985 54,579 19,493 54,579 7,797 15,594 15,594 7,797	8,400 7,650 70 680 21,442 3,899 5,458 1,949 5,458 780 1,559 1,559 780	92,400 84,150 0 0 0 0 770 7,480 235,860 42,884 60,037 21,442 60,037 17,153 17,153 8,577 1,491,183 89,471 1,580,654 0 1,580,654 24,55% 7,47% 32,02%	\$4,950 \$77 \$440 \$13,978 \$88,377 \$93,679	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1A-NHC-1
EIS (Preliminary Estimate)

(Rev-Mar2015)

Elo (Frommary Estimato)							·	
	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
		Dollars w/o	Dollars	Dollars	Dollars Unit	Dollars	Dollars	Total
		Contingency	Allocated	TOTAL	Cost	Percentage of	Percentage of	(X000)
		(X000)	Contingency	(X000)	(X000)	Construction	Total	
			(X000)			Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.45	331,488	95,505	426,992	\$24,474	42%	26%	0
10.01 Guideway: At-grade exclusive right-of-way	111.40			0	\$24,414	4270	2070	0
	0.40	20.024	0.050		#F 00F			
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	8.48	38,631	9,658	48,289	\$5,695			0
10.03 Guideway: At-grade in mixed traffic			0	0				0
10.04 Guideway: Aerial structure	4.22	191,336	57,401	248,737	\$59,001			0
10.05 Guideway: Built-up fill	1.92	7,684	1,921	9,605	\$4,995			0
10.06 Guideway: Underground cut & cover			0	0				0
						-		
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.83	32,518	8,129	40,647	\$14,371			0
10.09 Track: Direct fixation		16,693	5,008	21,701				0
10.10 Track: Embedded		14,054	4,216	18,270				0
10.11 Track: Ballasted		23,054	6,916	29,970				0
10.12 Track: Special (switches, turnouts)		7,006	2,102	9,108				0
10.13 Track: Vibration and noise dampening		513	154	667				0
					AT 440	400/	00/	
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb		98,610	27,491	126,101	\$7,418	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	14	32,689	9,807	42,496	\$3,035			0
20.02 Aerial station, stop, shelter, mall, terminal, platform	3	18,255	5,477	23,732	\$7,911			0
20.03 Underground station, stop, shelter, mall, terminal, platfor	m		0	0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, tro		1	0	0				0
	. ,, 2.0.		0	0				0
20.05 Joint development		44.004						
20.06 Automobile parking multi-story structure		41,831	10,458	52,289				0
20.07 Elevators, escalators		5,834	1,750	7,584				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG	17.45	56,832	17,049	73,881	\$4,235	7%	5%	0
30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132				0
30.02 Light Maintenance Facility	l	· ·	0	0				0
30.03 Heavy Maintenance Facility		25 100	7,559					0
		25,196		32,755				
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
40 SITEWORK & SPECIAL CONDITIONS	17.45	136,385	45,399	181,784	\$10,419	18%	11%	0
40.01 Demolition, Clearing, Earthwork		3,579	1,253	4,831				0
40.02 Site Utilities, Utility Relocation		68,253	25,936	94,189				0
	r trootmonte	4,400	2,200	6,600				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water								
40.04 Environmental mitigation, e.g. wetlands, historic/archeole	ogic, parks	5,077	1,523	6,601				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscapi	ing	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, parki	ng lots	45,993	11,498	57,491				0
40.08 Temporary Facilities and other indirect costs during cons		3,300	990	4,290				0
					640.000	040/	400/	0
50 SYSTEMS	17.45	166,716	46,246	212,962	\$12,206	21%	13%	
50.01 Train control and signals		33,617	10,085	43,702				0
50.02 Traffic signals and crossing protection		17,999	3,600	21,599				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		26,182	5,236	31,419				0
50.05 Communications		44,407	17,763	62,170				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
		0,000						
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	17.45	790,030	231,691	1,021,721	\$58,562	100%	63%	0
60 ROW, LAND, EXISTING IMPROVEMENTS	17.45	129,850	38,955	168,804	\$9,675		10%	0
60.01 Purchase or lease of real estate		101,207	30,362	131,570				0
60.02 Relocation of existing households and businesses		28,642	8,593	37,235				0
70 VEHICLES (number)	44	84,000	8,400	92.400	\$2,100		6%	0
				- ,			0 /8	
70.01 Light Rail	17	76,500	7,650	84,150	\$4,950			0
70.02 Heavy Rail				0				0
70.03 Commuter Rail		<u></u>		0				0
70.04 Bus	1			0				0
70.05 Other				0				0
70.06 Non-revenue vehicles	10	700	70	770	\$77			0
70.07 Spare parts	17	6,800	680	7,480	\$440			0
		1				0007	4501	
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17.45	217,258	21,726	238,984	\$13,698	23%	15%	0
80.01 Project Development		39,502	3,950	43,452				0
80.02 Engineering		55,302	5,530	60,832				0
80.03 Project Management for Design and Construction		19,751	1,975	21,726				0
80.04 Construction Administration & Management		55,302	5,530	60,832				0
· ·	nce	7,900	790	8,690				0
80.05 Professional Liability and other Non-Construction Incurs		15,801	1,580	17,381				0
80.05 Professional Liability and other Non-Construction Insural			1,560					
80.06 Legal; Permits; Review Fees by other agencies, cities, e	tc.		-					0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection	tc.	15,801	1,580	17,381				0
80.06 Legal; Permits; Review Fees by other agencies, cities, e	tc.	15,801 7,900	790	17,381 8,690				U
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection	17.45	15,801			\$87,231		94%	0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	17.45	15,801 7,900	790	8,690 1,521,909	\$87,231		94%	
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	17.45	15,801 7,900	790	8,690 1,521,909 91,315			6%	0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	17.45 17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224	\$87,231 \$92,465		6% 100%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0	\$92,465		6% 100% 0%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224			6% 100%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0	\$92,465		6% 100% 0%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224	\$92,465		6% 100% 0%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48%	\$92,465		6% 100% 0%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48% 32.11%	\$92,465		6% 100% 0%	0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48%	\$92,465		6% 100% 0%	0 0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48% 32.11%	\$92,465		6% 100% 0%	0 0 0 0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000)	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48% 32.11%	\$92,465		6% 100% 0%	0 0 0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17.45	15,801 7,900	790	8,690 1,521,909 91,315 1,613,224 0 1,613,224 24.63% 7.48% 32.11%	\$92,465		6% 100% 0%	0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1A-NHC-2
EIS (Preliminary Estimate)

(Rev-Mar2015)

Elo (Florithial)	-						·	
	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
		Dollars w/o	Dollars	Dollars	Dollars Unit	Dollars	Dollars	Total
		Contingency	Allocated	TOTAL	Cost	Percentage of	Percentage of	(X000)
		(X000)	Contingency	(X000)	(X000)	Construction	Total	
			(X000)			Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.33	323,638	93,168	416,806	\$24,052	41%	26%	0
10.01 Guideway: At-grade exclusive right-of-way				0				0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	8.67	40,021	10,005	50,026	\$5,769			0
10.03 Guideway: At-grade in mixed traffic			0	0	¥ = 7			0
10.04 Guideway: Aerial structure	4.09	183,878	55,163	239,041	\$58,406			0
*	1.91	7,621	1,905	9,526	\$4,996			0
10.05 Guideway: Built-up fill	1.91	7,021			\$4,990			
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.66	30,827	7,707	38,534	\$14,498			0
10.09 Track: Direct fixation		16,205	4,862	21,067				0
10.10 Track: Embedded		15,147	4,544	19,691				0
10.11 Track: Ballasted		22,453	6,736	29,188				0
10.12 Track: Special (switches, turnouts)		6,977	2,093	9,070				0
10.13 Track: Vibration and noise dampening		510	153	662				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	98,484	27,454	125,938	\$7,408	13%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	14	32,564	9,769	42,333	\$3,024	.070	0,0	0
20.02 Aerial station, stop, shelter, mall, terminal, platform	3	18,255	5,477	23,732	\$7,911			0
		10,233			Ψ1,511			0
20.03 Underground station, stop, shelter, mall, terminal, platfor		1	0	0				
20.04 Other stations, landings, terminals: Intermodal, ferry, tro	ney, etc.		0	0				0
20.05 Joint development			0	0				0
20.06 Automobile parking multi-story structure		41,831	10,458	52,289				0
20.07 Elevators, escalators		5,834	1,750	7,584				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG	17.33	56,832	17,049	73,881	\$4,263	7%	5%	0
30.01 Administration Building: Office, sales, storage, revenue	counting	7,024	2,107	9,132				0
30.02 Light Maintenance Facility			0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
	17.33	135,443	44,841		640.404	400/	440/	0
40 SITEWORK & SPECIAL CONDITIONS	17.33			180,284	\$10,404	18%	11%	0
40.01 Demolition, Clearing, Earthwork		3,560	1,246	4,807				
40.02 Site Utilities, Utility Relocation		65,735	24,979	90,715				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water		4,400	2,200	6,600				0
40.04 Environmental mitigation, e.g. wetlands, historic/archeole	ogic, parks	5,230	1,569	6,799				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscapi	ing	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, parki	ng lots	47,448	11,862	59,310				0
40.08 Temporary Facilities and other indirect costs during cons	struction	3,286	986	4,271				0
50 SYSTEMS	17.33	164,696	45,482	210,178	\$12,129	21%	13%	0
50.01 Train control and signals	17.00	32,629	9,789	42,417	ψ12,120	2170	1070	0
50.02 Traffic signals and crossing protection		19,042	3,808	22,850				0
* * * * * * * * * * * * * * * * * * * *		37,911	7,582	45,493				0
50.03 Traction power supply: substations								
50.04 Traction power distribution: catenary and third rail		25,413	5,083	30,495				0
50.05 Communications		43,102	17,241	60,343				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	17.33	779,093	227,995	1,007,088	\$58,115	100%	63%	0
60 ROW, LAND, EXISTING IMPROVEMENTS	17.33	123,931	37,179	161,110	\$9,297		10%	0
60.01 Purchase or lease of real estate		96,594	28,978	125,572				0
60.02 Relocation of existing households and businesses		27,337	8,201	35,537				0
70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.01 Light Rail	17	76,500	7,650	84,150	\$4,950		U / U	0
	· · · ·	70,000	7,000	0	ψ-1,000			0
70.02 Heavy Rail		1						
70.03 Commuter Rail	<u> </u>	1		0				0
70.04 Bus	<u> </u>	 		0				0
70.05 Other		l		0				0
70.06 Non-revenue vehicles	10	700	70	770	\$77			0
70.07 Spare parts	17	6,800	680	7,480	\$440			0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17.33	214,250	21,425	235,676	\$13,600	23%	15%	0
80.01 Project Development		38,955	3,895	42,850				0
80.02 Engineering		54,536	5,454	59,990				0
80.03 Project Management for Design and Construction		19,477	1,948	21,425				0
80.04 Construction Administration & Management		54,536	5,454	59,990				0
80.05 Professional Liability and other Non-Construction Insural	nce	7,791	779	8,570				0
80.06 Legal; Permits; Review Fees by other agencies, cities, e		15,582	1,558	17,140				0
80.07 Surveys, Testing, Investigation, Inspection		15,582	1,558	17,140				0
80.08 Start up		7,791	779	8,570				0
Subtotal (10 - 80)	17.33	1,201,274	294,999	1,496,273	\$86,344		94%	0
90 UNALLOCATED CONTINGENCY				89,776			6%	0
30 ONALLOGATED CONTINGLINGT	17.33			1,586,049	\$91,525		100%	0
Subtotal (10 - 90)	17.55						0%	0
	17.55			0			0 / 0	
Subtotal (10 - 90) 100 FINANCE CHARGES	17.33			_	\$91.525			
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17.33			1,586,049 24.56%	\$91,525		100%	0
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	17.33			1,586,049 24.56%	\$91,525			
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17.33			1,586,049 24.56% 7.47%	\$91,525			
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	17.33			1,586,049 24.56% 7.47% 32.03%	\$91,525			
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	17.33			1,586,049 24.56% 7.47%	\$91,525			0
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17.33			1,586,049 24.56% 7.47% 32.03%	\$91,525			0 \$0
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000)	17.33			1,586,049 24.56% 7.47% 32.03%	\$91,525			\$0 \$0
Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17.33			1,586,049 24.56% 7.47% 32.03%	\$91,525			0 \$0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C1A-NHC-LPA
EIS (Preliminary Estimate)

Collaboration Collaboratio									
16 GUIDEWAY & TRACK ELEMENTS (rouse mellion)		Quantity	Base Year	Base Year	Base Year	Base Year			YOE Dollars
County C									
Company Comp			,				of	of	(X000)
10 GUIDENAY & TRACK ELEMENTS (caute miles)			(X000)		(X000)	(X000)			
1907 Goldway Agrico marked with process and proces	AS SUIDEWAY S TRACK ELEMENTS (47.40	047.000		400.000	400.050			
1,00.02 Gulderey Anglade minerature (planes accentralific 1,00.05 10.071 30.0453 50.772 0.001 1	,	17.13	317,386	91,306		\$23,853	41%	26%	
1.00.3 Guidewey, Periode in Interest milities 1.00.0 Guidewey, Desirity in Illian and Storm 1.00.0 Guidewey, Desirity in Illian and Storm 1.00.0 Guidewey, Evaluation and Storm 1.00.0 Guidewey, Evaluation and Storm 1.00.0 Guidewey, Restaured out of Ill 1.00.0 Track: Evaluation and Storm 1.00.0 Guidewey, Restaured out of Ill 1.00.0 Track: Evaluation and Storm 1.00.0 Guidewey, Restaured out of Ill 1.00.1 Track: Evaluation and Storm Institution and Storm 1.00.1 Track: Evaluation and Storm Institution and Storm 1.00.1 Track: Evaluation and Storm Institution and St		0.74	40.000	10.001	_	05.770			
10.00 Guidewey - Marie Structure 1.50 7.72 7.78 7.80		8.74	40,363			\$5,772			
100.05 Cuberwy Undergrand out & Cover 1,00 7,721 1,000 9,005 8,4993 0 0 0 0 0 0 0 0 0		0.07	470.000			#50.005			
10.06 Calebrany, Underground and A cover	· · · · · · · · · · · · · · · · · · ·			-					
10.07 Guidewey, Underground strate 2.59 30,113 7.528 37,841 514,558 0 0 0 0 0 0 0 0 0		1.93	7,721			\$4,993			
10.00 Guideney, Rethined to or fill 2.99									
10.00 Track: Direct Huston 15.390 4.602 10.941									
10.10 Traits: Embedded 15.902 4.591 10.883 0 0 0 0 0 0 0 0 0	•	2.59				\$14,556			
10.11 Track: Signated (peaches, lumouts)									
10.13 Track: Visited and note dampening 1									
20.13 Tracks: Vibration and mose designering 50.4 151 655 0 0	10.11 Track: Ballasted		22,419	6,726					
28 STATIONS, STOPS, TERMINALS, NTERMODAL (numb 17 98,000) 27,659 128,052 37,432 139, 89, 0 20.01 Alrgrangs dation, stop, sheller, malt, terminal, platform 14 328,522 3,855 42,747 23,722 37,011 9 20.02 Jul Adragough attains, stop, sheller, malt, terminal, platform 3 18,255 6,477 23,722 37,011 9 20.03 Jul Adragough attains, stop, sheller, malt, terminal, platform 0 0 0 0 20.04 Other stations, stop, sheller, malt, terminal, platform 0 0 0 0 0 20.05 Julia development 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10.12 Track: Special (switches, turnouts)								
2001 Adjusted station, stop, shelter, mail, terminal, platform 14 32,882 9,865 42,777 33,063 9,000 0 0 0 0 0 0 0 0 0	10.13 Track: Vibration and noise dampening								
2002 Aurial sation, stop, sheller, malt, terminal, patrol patrol 0 0 0 0 0 0 0 0 0	20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	98,803	27,549	126,352		13%	8%	0
20.00 Orderground station, stops, shelter, mail, terminal, pattern 0 0 0 0 0 0 0 0 0	20.01 At-grade station, stop, shelter, mall, terminal, platform	14	32,882	9,865	42,747	\$3,053			0
20.06 John development 20.06 Automobile parking multi-story structure 41.831 10.458 52.289 0 0 0 0 0 0 0 0 0	20.02 Aerial station, stop, shelter, mall, terminal, platform	3	18,255	5,477	23,732	\$7,911			0
20.05 Joint development	20.03 Underground station, stop, shelter, mall, terminal, platfor	m		0	0				0
20.06 Automobile parking multi-story structure 41,831 10,468 52,289 0 0 0 0 0 0 0 0 0				0	0				0
2006 Automobile parking multi-story structure 41,831 10,458 52,289 0	20.05 Joint development			0	0				0
20.07 Elevators, escalators	·		41,831	10,458	52,289				0
39.04PORT FACILITIES: VARDS, SHOPS, ADMIN, BLDG 7.1 56,832 17,049 73,881 \$4,312 7% 5% 0 0 0 0 0 0 0 0 0				-	·				
30.01 Administration Building: Office, sales, storage, revenue counting 7,024 2,107 9,132 0 0 0 0 0 0 0 0 0		17.13				\$4.312	7%	5%	
30.02 Light Maintenance Facility 25,196 7,599 32,755 0.0 0.0						,=			
30.00 Storage of Maintenance of Way Building 25,196 7,599 32,755 0 0 0 0 0 0 0 0 0			7						
30.05 Variant Arivertance of Way Building 12.907 3.692 15.999 0 0 0 0 0 0 0 0 0	The state of the s		25.196						
1,205 3,091 15,996 0 0 0 0 0 0 0 0 0									
40 STEWORK & SPECIAL CONDITIONS 40.01 Demolition, Clearing, Earthwork 40.01 Demolition, Clearing, Earthwork 40.02 Site Utilities, Utility Relocation 40.03 Haz, amit, contain'd soil premoval/miligation, ground water treatments 40.03 Haz, amit, contain'd soil removal/miligation, ground water treatments 40.04 Environmental miligation, e.g. wetfands, historic/archeologic, parks 40.05 Site structures including retaining walls sound water 40.06 Site structures including retaining walls sound water 40.06 Site structures including retaining walls sound water 40.06 Site structures including retaining walls sound water 40.07 Automobile, bus, van accesses, was including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 50.07 SYSTEMS 50.01 Transic oration and signals 50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations 50.04 Traction power supply: substations 50.05 Fare collection systems and equipment 50.05 Formunications 50.06 Fare collections systems and equipment 50.06 Fare collection systems and equipment 50.06 Fare collection systems and equipment 50.07 Central Control 50.07 Vehicle Collection systems and equipment 50.07 Town, LAND, EXISTING IMPROVEMENTS 50.01 Furbase or lesses of real estate 50.01 Furbase or lesses									
40.02 Site billings, Utility Records 1.247 4.808 0		17 13				\$10.611	199/	12%	
440.39 Haz, mart, contain's do irrenoval/miligation, ground water freatments 40.403 Haz, mart, contain's do irrenoval/miligation, e.g. vetlenash, historic/archeologic, parks 40.65 Site structures including relating walls sound walls 40.65 Site structures including relating walls was an expension of the structure including relating walls was an expension of the structure including walls was also structure wall was also		17.10			, , , , , , ,	\$10,011	10 /6	12 /0	
40.04 Parcommental mitigation, gound water freatments 40.06 exponential mitigation, gound water freatments 40.06 Perdestrian's feature including retaining walls, sound walls 40.06 Perdestrian's // (10.00 per destrian's //									
40.04 Environmental mitigation, e.g., wellands, historicarcheologic, parks 40.05 Site structures including relating walls, sound walls 50.00 150 65.00 150 65.00 0 0 0 0 0 0 0 0 0		er treatments		-	·				
4.0.6 Site structures including retaining walls, sound walls 50.0 150 50.0 150 0 0 0 0 0 0 0 0 0									
40.06 Pedestrian / Dike access and accommodation, landscaping 3,710 1,298 5,008 1,298 1,		l l							
40.07 Automobile, bus, van accessways including roads, parking lots 47.238 11.809 59.047									
40.08 Temporary Facilities and other indirect costs during construction 3.289 987 4.276	· · · · · · · · · · · · · · · · · · ·	-							
17.13 16.3 944 45.198 209.142 \$12,207 21% 13% 0									
						^ 440.00 7	040/	400/	
19.432 3.886 23.318 0 0 0 0 0 0 0 0 0		17.13				\$12,207	21%	13%	
50.03 Traction power distribution: catenary and third rail 25.04 Traction power distribution: catenary and third rail 25.04 50.05 50.05 50.05 50.05 50.05 50.06 50.06 50.06 50.06 50.07									
Solid Traction power distribution: catenary and third rail Solid									
\$42,615									
50.06 Fare collection system and equipment 6,600 1,980 8,580 0 0 0 0 0 0 0 0 0									
Solid Central Control Construction Subtotal (10 - 50) 17.13 773.494 226.382 999.875 \$58.358 100% 63% 0 So ROW, LAND, EXISTING IMPROVEMENTS 17.13 123.488 37.046 160.534 \$9,370 10% 0 60.01 Purchase or lease of real estate 69.249 28.875 125.123 53.410 0 60.02 Relocation of existing households and businesses 27.239 8.172 35.410 0 70.02 Heavy Rail 17 76,500 7,650 84,150 \$4,950 6% 0 70.03 Commuter Rail 17 76,500 7,650 84,150 \$4,950 6% 0 70.04 Bus 0 0 0 0 0 70.05 Other 0 0 0 0 0 70.07 Spare parts 10 700 70 770 \$77 0 80.07 Spare parts 17 6.800 680 7,480 \$440 0 80.08 ERSVICES (applies to Cats. 10-50) 80.01 Project Development 58,145 5,414 59,559 0 80.03 Project Management for Design and Construction 19.337 1,934 21,271 21,271 233,982 313,656 23% 15% 0 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,470 1,547 17,017 8,508 0 80.08 Start up 7,735 773 8,508 0 80.09 Subtotal (10 - 80) 17.13 1,193.692 293.099 1,486,791 886,777 94% 0 80.00 Unallocated Contingency as % of Base Yr Dollars w/o Contingency Junal/Ceated Contingency as % of Base Yr Dollars w/o Contingency Junal/Ceated Contingency as % of Base Yr Dollars w/o Contingency Junal/Ceated Contingency as % of Base Yr Dollars w/o Contingency Junal/Ceated Contingency as % of Base Yr Dollars w/o Contingency Junal/Ceated Contingency as % of Subtotal (10 - 80) 200.000									
Construction Subtotal (10 - 50)			6,600						
17.13 123.488 37.046 160,534 \$9,370 0 0 0 0 0 0 0 0 0	50.07 Central Control								
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 44 84,000 8,400 92,400 \$2,100 6% 0 70.01 Light Rail 17 76,500 7,650 84,150 \$4,950 70.02 Heavy Rail 10 0 0 70.03 Commuter Rail 10 0 0 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 10 700 70 70 770 \$77 70.07 Spare parts 17 6,800 680 7,480 \$44 80.00 Engineering 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 1surance 80.04 Construction Administration & Management 84,145 5,414 59,559 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.09 Total Project Cost for Mile Non-Construction Project Cost (10 - 100) 17,13 1,193,692 293,099 \$1,983 100% 0 100 FINANCE CHARGES 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Construction Subtotal (10 - 50)	17.13			999,875	\$58,358	100%	63%	0
60.02 Relocation of existing households and businesses 27.239 8.172 35.410 0 0	60 ROW, LAND, EXISTING IMPROVEMENTS	17.13	123,488		160,534	\$9,370		10%	0
70 VEHICLES (number)	60.01 Purchase or lease of real estate				125,123				
Total Light Rail			27,239	8,172	35,410				
Total Light Rail	70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.03 Commuter Rail 70.04 Bus 70.05 Other 70.05 Other 70.06 Non-revenue vehicles 70.06 Non-revenue vehicles 70.07 Spare parts 10 700 70 70 770 \$77 00 877 00 800 680 7.480 \$440 00 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.09 Start up 80.09 Start up 80.00 Start up 80.00 Start up 80.00 Start up 80.00 Surveys, Testing, Investigation, Inspection 80.01 CATED CONTINGENCY 80.01 Ty 13 1,193,692 293,099 1,486,791 \$86,777 94% 90 UNALLOCATED CONTINGENCY 80.02 Ty 13 1,575,999 \$91,983 100% 90 UNALCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 910 UNALCOCATED CONTINGENCY 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base Yr Dollars w/o Contingency 910 Unalcocated Contingency as % of Base		17	76,500	7,650	84,150	\$4,950			0
70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 10 70.07 70 770 \$77 70.07 Spare parts 10 70.08 South Project Development 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,470 1,547 17,017 80.08 Start up 80.09 Start up 80.00 Start up 90 UNALLOCATED CONTINGENCY 80 UNALLOCATED CONTINGENCY 80 Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency VPCE Total Project Cost fulle Project Cost per Mile Not Including Vehicles (X000) 80 Total Project Cost fulle Not Including Vehicles (X000) 80 Total Project Cost per Mile Not Including Vehicles (X000) 80 Total Project Cost per Mile Not Including Vehicles (X000) 80 Total Project Cost fuller Administration of the Not Including Vehicles (X000) 80 Total Project Cost fuller Not Including Vehicles (X000)	70.02 Heavy Rail				0				0
70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 17.13 212,711 21,271 233,982 \$13,656 23% 15% 0 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 70.07 Sample Subtotal (10 - 80) 80.08 Subtotal (10 - 90) 17.13 1,193,692 293,099 1,486,791 94% 0 90 UNALLOCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 90 UNALCOCATED CONTINGENCY 91 Subtotal (10 - 90) 17.13 1,193,692 293,099 1,486,791 94% 0 91 OF Total Project Cost (10 - 100) 17.13 1,575,999 \$91,983 100% 0 91 Color Total Project Cost (10 - 100) 17.14 None of Base Yr Dollars w/o Contingency 17.15 Contingency as % of Base Yr Dollars w/o Contingency 18.06 Total Project Cost per Mile Not Including Vehicles (X000) 80 Control Project Cost per Mile Not Including Vehicles (X000) 80 Control Project Cost per Mile Not Including Vehicles (X000)	70.03 Commuter Rail								
Touch Touc					0				0
Touch Touc	70.04 Bus								
17.13 212,711 21,271 233,982 \$13,656 23% 15% 0					0				0
80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 UNALLOCATED CONTINGENCY 80.09 UNALLOCATED CONTINGENCY 80.09 UNALLOCATED CONTINGENCY 80.00 Subtotal (10 - 90) 17.13 1,575,999 17.13 1,575,999 17.13 1,575,999 17.19 100 FINANCE CHARGES 10 0 00% 00 0 00 0 00% 00 0	70.05 Other	10	700	70	0	\$77			0
80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 UNALLOCATED CONTINGENCY 80.09 UNALLOCATED CONTINGENCY 80.09 UNALLOCATED CONTINGENCY 80.00 Subtotal (10 - 90) 17.13 1,575,999 17.13 1,575,999 17.13 1,575,999 17.19 100 FINANCE CHARGES 10 0 00% 00 0 00 0 00% 00 0	70.05 Other 70.06 Non-revenue vehicles				0 0 770				0 0 0
80.02 Engineering 80.03 Project Management for Design and Construction 19,337 1,934 21,271 80.04 Construction Administration & Management 54,145 5,414 59,559 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,470 1,547 17,017 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 17,13 1,193,692 293,099 1,486,791 \$86,777 94% 0 80 UNALLOCATED CONTINGENCY 80	70.05 Other 70.06 Non-revenue vehicles	17	6,800	680	0 0 770 7,480	\$440	23%	15%	0 0 0 0
80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.08 Start up 80.08 Subtotal (10 - 80) 80 UNALLOCATED CONTINGENCY 80 UNALCOCATED CONTI	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17	6,800 212,711	680 21,271	0 0 770 7,480 233,982	\$440	23%	15%	0 0 0 0
80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 UNALLOCATED CONTINGENCY 80.00 Subtotal (10 - 80) 80.00 Legal; Permits; Review Fees by other agencies, cities, etc. 15,470 1,547 17,017 0 8,508 80.08 Start up 7,735 773 8,508 9 0 0 89,207 90 UNALLOCATED CONTINGENCY 89,207 89,207 6% 0 17.13 1,575,999 \$91,983 100% 0 17.143 1,575,999 \$91,983 100% 0 17.154 1,575,999 \$91,983 100% 0 17.155 1,575,999 \$91,983 100% 0 17.156 100 FINANCE CHARGES 0 100 JINANCE CHARGES 0 100 JINANCE CHARGES 0 100 JINANCE COntingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) 40 Construction Cost per Mile (X000) 40 Construction Cost per Mile (X000) 40 Control Project Cost per Mile (X000)	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development	17	6,800 212,711 38,675	680 21,271 3,867	0 0 770 7,480 233,982 42,542	\$440	23%	15%	0 0 0 0 0
80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 15,470 1,547 17,017 80.07 Surveys, Testing, Investigation, Inspection 15,470 1,547 17,017 80.08 Start up 15,470 1,547 17,017 80.08 Start up 15,470 1,547 17,017 80.08 Start up 17,735 773 8,508 80,00 UNALLOCATED CONTINGENCY 80,00 UNALLOCATED CONTINGENCY 80,00 UNALLOCATED CONTINGENCY 80,207 6% 80	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering	17	6,800 212,711 38,675 54,145	680 21,271 3,867 5,414	0 0 770 7,480 233,982 42,542 59,559	\$440	23%	15%	0 0 0 0 0 0
80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,470 1,547 17,017 80.08 Subtotal (10 - 80) 17,13 1,193,692 17,13 1,575,999 1,486,791 1,575,999 1,486,791 1,575,999 1,983 100% 0 100 FINANCE CHARGES 0 100 What Contingency as % of Base Yr Dollars w/o Contingency 17,13 1,575,999 1,575,999 1,983 100% 0 17,13 1,575,999 1,983 100% 0 100 Finance Contingency as % of Base Yr Dollars w/o Contingency 17,47% 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547 17,017 1,547	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	17	6,800 212,711 38,675 54,145 19,337	680 21,271 3,867 5,414 1,934	0 0 770 7,480 233,982 42,542 59,559 21,271	\$440	23%	15%	0 0 0 0 0 0
80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,470 1,547 17,017 7,735 773 8,508 0 0 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 80 UN	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145	680 21,271 3,867 5,414 1,934 5,414	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559	\$440	23%	15%	0 0 0 0 0 0 0 0
80.08 Start up 7,735 773 8,508 0 Subtotal (10 - 80) 17.13 1,193,692 293,099 1,486,791 \$86,777 94% 0 90 UNALLOCATED CONTINGENCY 89,207 6% 0 Subtotal (10 - 90) 17.13 1,575,999 \$91,983 100% 0 100 FINANCE CHARGES 0 0 0% 0 Total Project Cost (10 - 100) 17.13 1,575,999 \$91,983 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency 24.55% 10allocated Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% 10allocated Contingency as % of Subtotal (10 - 80) 6.00% 10allocated Contingency as % of Subtotal (10 - 80) 6.00% 10allocated Contingency as % of Subtotal (10 - 80) 8.00	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insuran	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145 7,735	680 21,271 3,867 5,414 1,934 5,414 773	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508	\$440	23%	15%	0 0 0 0 0 0 0 0 0
17.13 1,193,692 293,099 1,486,791 \$86,777 94% 0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470	680 21,271 3,867 5,414 1,934 5,414 773 1,547	0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017	\$440	23%	15%	0 0 0 0 0 0 0 0 0
Subtotal (10 - 90) 17.13 1,575,999 \$91,983 100% 0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470	680 21,271 3,867 5,414 1,934 5,414 773 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017	\$440	23%	15%	0 0 0 0 0 0 0 0 0
17.13	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508	\$440 \$13,656	23%		0 0 0 0 0 0 0 0 0 0
100 FINANCE CHARGES	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	17 17.13	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508	\$440 \$13,656	23%	94%	0 0 0 0 0 0 0 0 0 0 0
Total Project Cost (10 - 100)	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207	\$440 \$13,656 \$86,777	23%	94% 6%	0 0 0 0 0 0 0 0 0 0 0 0 0
Allocated Contingency as % of Base Yr Dollars w/o Contingency 1.47% Total Contingency as % of Base Yr Dollars w/o Contingency 24.55% 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) FOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999	\$440 \$13,656 \$86,777	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insuran 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55% 7,47%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0
YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55% 7,47% 32,03%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0
	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55% 7,47% 32,03%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
TOE TOIGHT POST VOST PET MITTE (AUDU)	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insuran 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55% 7,47% 32,03%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, e 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile (X000)	17 17.13 nce tc.	6,800 212,711 38,675 54,145 19,337 54,145 7,735 15,470 15,470 7,735	680 21,271 3,867 5,414 1,934 5,414 773 1,547 1,547	0 0 770 7,480 233,982 42,542 59,559 21,271 59,559 8,508 17,017 17,017 8,508 1,486,791 89,207 1,575,999 0 1,575,999 24,55% 7,47% 32,03%	\$440 \$13,656 \$86,777 \$91,983	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C2-NHC-1
EIS (Preliminary Estimate)

(Rev-Mar2015)

	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
		Dollars w/o	Dollars	Dollars	Dollars Unit	Dollars	Dollars	Total
		Contingency	Allocated	TOTAL	Cost	Percentage of	Percentage of	(X000)
		(X000)	Contingency	(X000)	(X000)	Construction	Total	
			(X000)			Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.35	320,694	92,206	412,901	\$23,801	41%	26%	0
10.01 Guideway: At-grade exclusive right-of-way				0				0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	8.91	40,105	10,026	50,131	\$5,630			0
10.03 Guideway: At-grade in mixed traffic			0	0	¥ = /, = = =			0
10.04 Guideway: Aerial structure	3.99	179,942	53,983	233,925	\$58,607			0
•	1.48	6,010	1,502	7,512	\$5,073			0
10.05 Guideway: Built-up fill	1.40	6,010			\$5,073			
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.97	33,927	8,482	42,409	\$14,277			0
10.09 Track: Direct fixation		15,804	4,741	20,545				0
10.10 Track: Embedded		14,073	4,222	18,294				0
10.11 Track: Ballasted		23,342	7,003	30,345				0
10.12 Track: Special (switches, turnouts)		6,982	2,095	9,076				0
10.13 Track: Vibration and noise dampening		510	153	663				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	93,277	25,820	119,098	\$7,006	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	15	34,764	10,429	45,193	\$3,013	,	0,0	0
20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720	3,216	13,936	\$6,968			0
		10,120			ψ0,300			0
20.03 Underground station, stop, shelter, mall, terminal, platfor		1	0	0				
20.04 Other stations, landings, terminals: Intermodal, ferry, tro	ney, etc.	1	0	0				0
20.05 Joint development			0	0				0
20.06 Automobile parking multi-story structure		43,256	10,814	54,071				0
20.07 Elevators, escalators		4,538	1,361	5,899				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG	17.35	56,832	17,049	73,881	\$4,259	7%	5%	0
30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132				0
30.02 Light Maintenance Facility			0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
		12,305	3,691	15,996				0
30.05 Yard and Yard Track	47.0E				640.400	400/	400/	
40 SITEWORK & SPECIAL CONDITIONS	17.35	136,452	45,407	181,859	\$10,483	18%	12%	0
40.01 Demolition, Clearing, Earthwork		3,572	1,250	4,823				0
40.02 Site Utilities, Utility Relocation		68,189	25,912	94,101				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water	er treatments	4,400	2,200	6,600				0
40.04 Environmental mitigation, e.g. wetlands, historic/archeological	ogic, parks	5,145	1,544	6,689				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscapi	ing	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, parkir	-	46,122	11,531	57,653				0
40.08 Temporary Facilities and other indirect costs during cons		3,240	972	4,212				0
50 SYSTEMS		166,420	46,119	212,540	\$12,252	21%	13%	0
	17.35			•	\$12,232	21%	13%	0
50.01 Train control and signals		33,430	10,029	43,459				-
50.02 Traffic signals and crossing protection		18,282	3,656	21,938				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		26,037	5,207	31,244				0
50.05 Communications		44,161	17,664	61,825				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
11.00 raio concentra oyutum ana oquipment				•				0
			0	0				
50.07 Central Control	17.35	773,675			\$57.660	100%	63%	0
50.07 Central Control Construction Subtotal (10 - 50)	17.35 17.35	773,675 123,905	226,603	1,000,278	\$57,660 \$9.285	100%	63%	0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS	17.35 17.35	123,905	226,603 37,171	1,000,278 161,076	\$57,660 \$9,285	100%	63% 10%	0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate	17.35 17.35	123,905 96,574	226,603 37,171 28,972	1,000,278 161,076 125,546		100%		0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses		123,905 96,574 27,331	226,603 37,171 28,972 8,199	1,000,278 161,076 125,546 35,530	\$9,285	100%	10%	0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number)	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400	\$9,285 \$2,100	100%		0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail		123,905 96,574 27,331	226,603 37,171 28,972 8,199	1,000,278 161,076 125,546 35,530 92,400 84,150	\$9,285	100%	10%	0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400 84,150 0	\$9,285 \$2,100	100%	10%	0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400 84,150 0	\$9,285 \$2,100	100%	10%	0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0	\$9,285 \$2,100	100%	10%	0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400 84,150 0	\$9,285 \$2,100	100%	10%	0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus	44	123,905 96,574 27,331 84,000	226,603 37,171 28,972 8,199 8,400	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0	\$9,285 \$2,100	100%	10%	0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other	44 17	123,905 96,574 27,331 84,000 76,500	226,603 37,171 28,972 8,199 8,400 7,650	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0	\$9,285 \$2,100 \$4,950	100%	10%	0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts	10 17	123,905 96,574 27,331 84,000 76,500 700 6,800	226,603 37,171 28,972 8,199 8,400 7,650 70 680	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 0 770 7,480	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	10	123,905 96,574 27,331 84,000 76,500 700 6,800 212,761	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 0 770 7,480 234,037	\$9,285 \$2,100 \$4,950	100%	10%	0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development	10 17	123,905 96,574 27,331 84,000 76,500 700 6,800 212,761 38,684	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering	10 17	123,905 96,574 27,331 84,000 76,500 700 6,800 212,761 38,684 54,157	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416	1,000,278 161,076 125,546 125,540 92,400 84,150 0 0 0 0 770 7,480 234,037 42,552 59,573	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	10 17	123,905 96,574 27,331 84,000 76,500 700 6,800 212,761 38,684 54,157 19,342	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	10 17 17 17 17.35	123,905 96,574 27,331 84,000 76,500 700 6,800 212,761 38,684 54,157 19,342 54,157	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar	10 17 17 17.35	700 6,800 212,761 38,684 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et	10 17 17 17.35	700 6,800 212,761 38,684 54,157 7,737 15,474	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774	1,000,278 161,076 125,546 125,546 92,400 84,150 0 0 7770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar	10 17 17 17.35	700 6,800 212,761 38,684 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et	10 17 17 17.35	700 6,800 212,761 38,684 54,157 7,737 15,474	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774	1,000,278 161,076 125,546 125,546 92,400 84,150 0 0 7770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021	\$9,285 \$2,100 \$4,950 \$77 \$440		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up	10 17 17 17.35	700 6,800 21,761 38,684 54,157 19,342 54,157 15,474	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 1,934 5,416 1,547	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491		6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 30 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	10 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 8,510 17,021 1,7021 8,510 1,487,791	\$9,285 \$2,100 \$4,950 \$77 \$440		10%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491		10% 6% 15%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
50.07 Central Control Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insuran 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	10 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 125,546 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 1,487,791 89,267 1,577,058	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491		10% 6% 15% 94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491		10% 6% 15% 94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 8,510 17,021 1,7021 8,510 1,487,791 89,267 1,577,058 0 1,577,058 24,57%	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 125,546 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 17,021 1,487,791 89,267 1,577,058 0 1,577,058 0 1,577,058	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0 1,577,058 24,57% 7,47% 32,04%	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 125,546 92,400 84,150 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 17,021 1,487,791 89,267 1,577,058 0 1,577,058 0 1,577,058	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0 1,577,058 24,57% 7,47% 32,04%	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0 1,577,058 24,57% 7,47% 32,04%	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Construction Subtotal (10 - 50) 60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	10 17 17 17 17.35	700 6,800 212,761 38,684 54,157 19,342 54,157 7,737	226,603 37,171 28,972 8,199 8,400 7,650 70 680 21,276 3,868 5,416 1,934 5,416 774 1,547 774	1,000,278 161,076 125,546 35,530 92,400 84,150 0 0 0 770 7,480 234,037 42,552 59,573 21,276 59,573 8,510 17,021 17,021 8,510 1,487,791 89,267 1,577,058 0 1,577,058 24,57% 7,47% 32,04%	\$9,285 \$2,100 \$4,950 \$77 \$440 \$13,491 \$85,763 \$90,909		10% 6% 15% 94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C2-NHC-2
EIS (Preliminary Estimate)

1								
	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
		Dollars w/o	Dollars	Dollars	Dollars Unit	Dollars	Dollars	Total
		Contingency	Allocated	TOTAL	Cost	Percentage of	Percentage of	(X000)
		(X000)	Contingency	(X000)	(X000)	Construction	Total	
			(X000)			Cost	Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.23	312,845	89,870	402,714	\$23,373	41%	26%	0
10.01 Guideway: At-grade exclusive right-of-way				0				0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	9.10	41,495	10,374	51,869	\$5,702			0
10.03 Guideway: At-grade in mixed traffic		,	0	0	V-7			0
10.04 Guideway: Aerial structure	3.87	172,484	51,745	224,229	\$57,966			0
•	1.46	5,947	1,487	7,434	\$5,075			0
10.05 Guideway: Built-up fill	1.46	5,947			\$5,075			
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.80	32,236	8,059	40,295	\$14,391			0
10.09 Track: Direct fixation		15,317	4,595	19,912				0
10.10 Track: Embedded		15,166	4,550	19,716				0
10.11 Track: Ballasted		22,741	6,822	29,563				0
10.12 Track: Special (switches, turnouts)		6,953	2,086	9,039				0
10.13 Track: Vibration and noise dampening		507	152	659				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	93,152	25,783	118,935	\$6,996	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	15	34,638	10,391	45,030	\$3,002	1270	0,0	0
20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720	3,216	13,936	\$6,968			0
		10,120			ψ0,300			0
20.03 Underground station, stop, shelter, mall, terminal, platfor		 	0	0				
20.04 Other stations, landings, terminals: Intermodal, ferry, tro	ney, etc.		0	0				0
20.05 Joint development			0	0				0
20.06 Automobile parking multi-story structure		43,256	10,814	54,071				0
20.07 Elevators, escalators		4,538	1,361	5,899				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG	17.23	56,832	17,049	73,881	\$4,288	7%	5%	0
30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132				0
30.02 Light Maintenance Facility			0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
	47.00				010.100	400/	400/	
40 SITEWORK & SPECIAL CONDITIONS	17.23	135,510	44,850	180,359	\$10,468	18%	12%	0
40.01 Demolition, Clearing, Earthwork		3,554	1,244	4,798				0
40.02 Site Utilities, Utility Relocation		65,671	24,955	90,627				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water	er treatments	4,400	2,200	6,600				0
40.04 Environmental mitigation, e.g. wetlands, historic/archeological	ogic, parks	5,298	1,589	6,888				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscapi	ng	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, parkir	-	47,578	11,894	59,472				0
40.08 Temporary Facilities and other indirect costs during cons		3,225	968	4,193				0
50 SYSTEMS		164,400	45,355	209,755	\$12,174	21%	14%	0
	17.23				\$12,174	21%	14%	0
50.01 Train control and signals		32,442	9,733	42,175				
50.02 Traffic signals and crossing protection		19,324	3,865	23,189				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		25,267	5,053	30,321				0
50.05 Communications		42,855	17,142	59,998				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	17.23	762,738	222,907	985,645	\$57,205	100%	64%	0
, ,			35,396		_	100,0	10%	
60 ROW I AND EXISTING IMPROVEMENTS	17 23	117.986						
60 ROW, LAND, EXISTING IMPROVEMENTS 60 01 Purchase or lease of real estate	17.23	117,986 91,960		153,381 119,549	\$8,902		1076	0
60.01 Purchase or lease of real estate	17.23	91,960	27,588	119,549	\$6,902		10%	0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses		91,960 26,025	27,588 7,808	119,549 33,833				0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number)	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400	\$2,100		6%	0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail		91,960 26,025	27,588 7,808	119,549 33,833 92,400 84,150				0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400 84,150 0	\$2,100			0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400 84,150 0	\$2,100			0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400 84,150 0 0	\$2,100			0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400 84,150 0	\$2,100			0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus	44	91,960 26,025 84,000	27,588 7,808 8,400	119,549 33,833 92,400 84,150 0 0	\$2,100			0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other	44 17	91,960 26,025 84,000 76,500	27,588 7,808 8,400 7,650	119,549 33,833 92,400 84,150 0 0 0	\$2,100 \$4,950			0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts	10 17	91,960 26,025 84,000 76,500 700 6,800	27,588 7,808 8,400 7,650 70 680	119,549 33,833 92,400 84,150 0 0 0 0 770 7,480	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	10	91,960 26,025 84,000 76,500 700 6,800 209,753	27,588 7,808 8,400 7,650 70 680 20,975	119,549 33,833 92,400 84,150 0 0 0 0 770 7,480 230,728	\$2,100 \$4,950	23%		0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development	10 17	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137	27,588 7,808 8,400 7,650 70 680 20,975 3,814	119,549 33,833 92,400 84,150 0 0 0 0 770 7,480 230,728 41,951	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering	10 17	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392	70 680 20,975 3,814 5,339	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	10 17	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392 19,068	7,588 7,808 8,400 7,650 70 680 20,975 3,814 5,339 1,907	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	10 17 17 17 17.23	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392	70 680 20,975 3,814 5,339 1,907 5,339	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar	10 17 17 17.23	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627	70 680 20,975 3,814 5,339 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 8,390	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255	70 680 20,975 3,814 5,339 763 1,525	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar	10 17 17 17.23	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627	70 680 20,975 3,814 5,339 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 8,390	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255	70 680 20,975 3,814 5,339 763 1,525	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780	\$2,100 \$4,950 \$77 \$440	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 1,907 5,339 763 1,525 1,525	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391	23%	6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	10 17 17 17.23	91,960 26,025 84,000 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 8,390 16,780 8,390 1,462,154	\$2,100 \$4,950 \$77 \$440	23%	15%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390 1,462,154 87,729	\$2,100 \$4,950 \$77 \$440 \$13,391 \$84,861	23%	6% 15% 94% 6%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390 1,462,154 87,729 1,549,883 0	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883 0	\$2,100 \$4,950 \$77 \$440 \$13,391 \$84,861	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 24,49%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 0 1,549,883 24,49% 7,47%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 24,49% 7,47% 31,96%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 0 1,549,883 24,49% 7,47%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 24,49% 7,47% 31,96%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 24,49% 7,47% 31,96%	\$2,100 \$4,950 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 70.01 Light Rail 70.02 Heavy Rail 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	10 17 17 17.23	91,960 26,025 84,000 76,500 76,500 700 6,800 209,753 38,137 53,392 19,068 53,392 7,627 15,255 7,627	70 680 20,975 3,814 5,339 763 1,525 1,525 763	119,549 33,833 92,400 84,150 0 0 770 7,480 230,728 41,951 58,731 20,975 58,731 8,390 16,780 16,780 8,390 1,462,154 87,729 1,549,883 0 1,549,883 24,49% 7,47% 31,96%	\$2,100 \$4,950 \$77 \$440 \$13,391 \$84,861 \$89,952	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY ALTERNATE - C2-NHC-LPA EIS (Preliminary Estimate)

EIS (Pleiillinary Estimate)						HUIK		2020
	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
		Dollars w/o	Dollars	Dollars	Dollars Unit	Dollars Percentage	Dollars Percentage	Total
		Contingency	Allocated	TOTAL (Y000)	Cost	of	of	(X000)
		(X000)	Contingency (X000)	(X000)	(X000)	Construction Cost	Total Project Cost	
10 GUIDEWAY & TRACK ELEMENTS (route miles)	17.03	306,593	88.008	394,601	\$23,165	40%	26%	0
10.01 Guideway: At-grade exclusive right-of-way	11100	,	,	0	\$20,100	1070	2070	0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	9.17	41,837	10,459	52,296	\$5,705			0
10.03 Guideway: At-grade in mixed traffic			0	0				0
10.04 Guideway: Aerial structure	3.65	167,302	50,191	217,493	\$59,594			0
10.05 Guideway: Built-up fill	1.49	6,047	1,512	7,559	\$5,070			0
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.73	31,522	7,881	39,403	\$14,444			0
10.09 Track: Direct fixation		14,451	4,335	18,786				0
10.10 Track: Embedded		15,321	4,596	19,917				0
10.11 Track: Ballasted		22,708	6,812	29,520				0
10.12 Track: Special (switches, turnouts)		6,904	2,071	8,976				0
10.13 Track: Vibration and noise dampening		501	150	651				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb		93,470	25,878	119,349	\$7,021	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	15	34,957	10,487	45,444	\$3,030			0
20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720	3,216	13,936	\$6,968			0
20.03 Underground station, stop, shelter, mall, terminal, platfor			0	0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, tro 20.05 Joint development	mey, etc.		0	0				0
20.05 Joint development 20.06 Automobile parking multi-story structure		43,256	10,814	54,071				0
20.07 Elevators, escalators		4,538	1,361	5,899				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG	17.03	56,832	17,049	73,881	\$4,337	8%	5%	0
30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132	ψ 4 ,001	070	370	0
30.02 Light Maintenance Facility		.,027	0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
40 SITEWORK & SPECIAL CONDITIONS	17.03	136,596	45,287	181,883	\$10,677	19%	12%	0
40.01 Demolition, Clearing, Earthwork		3,555	1,244	4,799				0
40.02 Site Utilities, Utility Relocation		68,917	26,188	95,105				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water	er treatments	4,000	2,000	6,000				0
40.04 Environmental mitigation, e.g. wetlands, historic/archeological	ogic, parks	5,318	1,596	6,914				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscapi	ing	3,710	1,298	5,008				0
40.07 Automobile, bus, van accessways including roads, parkir	ng lots	47,367	11,842	59,209				0
40.08 Temporary Facilities and other indirect costs during cons	struction	3,229	969	4,197				0
50 SYSTEMS	17.03	163,648	45,071	208,719	\$12,253	21%	14%	0
50.01 Train control and signals		32,074	9,622	41,696				0
50.02 Traffic signals and crossing protection		19,714	3,943	23,657				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		24,980	4,996	29,977				0
50.05 Communications		42,369	16,948	59,316				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control	47.00	757 120	0 221,293	0	¢57.400	4000/	0.40/	0
Construction Subtotal (10 - 50)	17.03	757,139 117,543	35,263	978,432	\$57,438	100%	64%	0
60 ROW, LAND, EXISTING IMPROVEMENTS 60.01 Purchase or lease of real estate	17.03			152,805	\$8,970		10%	0
60.02 Relocation of existing households and businesses		91,615 25,927	27,485 7,778	119,100 33,706				0
70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.01 Light Rail	17	76,500	7,650	84,150	\$4,950		070	0
70.02 Heavy Rail	<u> </u>	-,	,	0	,			0
70.03 Commuter Rail				0				0
70.04 Bus				0				0
70.05 Other				0				0
					677			0
70.06 Non-revenue vehicles	10	700	70	770	\$77			0
	10 17	700 6,800	70 680	770 7,480	\$440			
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50)						23%	15%	0
70.06 Non-revenue vehicles 70.07 Spare parts	17	6,800	680	7,480	\$440	23%	15%	
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering	17	6,800 208,213	680 20,821	7,480 229,035	\$440	23%	15%	0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction	17	6,800 208,213 37,857 53,000 18,928	680 20,821 3,786 5,300 1,893	7,480 229,035 41,643 58,300 20,821	\$440	23%	15%	0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000	680 20,821 3,786 5,300 1,893 5,300	7,480 229,035 41,643 58,300 20,821 58,300	\$440	23%	15%	0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571	680 20,821 3,786 5,300 1,893 5,300 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329	\$440	23%	15%	0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143	680 20,821 3,786 5,300 1,893 5,300 757 1,514	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657	\$440	23%	15%	0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657	\$440	23%	15%	0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329	\$440 \$13,445	23%		0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672	\$440	23%	94%	0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insural 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160	\$440 \$13,445 \$85,278	23%	94% 6%	0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833	\$440 \$13,445	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0	\$440 \$13,445 \$85,278	23%	94% 6% 100%	0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 24,49%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insuran 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0 1,539,833 24,49% 7,47%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0 1,539,833 24,49% 7,47% 31,96%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0 1,539,833 24,49% 7,47%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0 1,539,833 24,49% 7,47% 31,96%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0
70.06 Non-revenue vehicles 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurar 80.06 Legal; Permits; Review Fees by other agencies, cities, et 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	17 17.03	6,800 208,213 37,857 53,000 18,928 53,000 7,571 15,143 15,143 7,571	680 20,821 3,786 5,300 1,893 5,300 757 1,514 1,514 757	7,480 229,035 41,643 58,300 20,821 58,300 8,329 16,657 16,657 8,329 1,452,672 87,160 1,539,833 0 1,539,833 24,49% 7,47% 31,96%	\$440 \$13,445 \$85,278 \$90,395	23%	94% 6% 100% 0%	0 0 0 0 0 0 0 0 0 0 0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C2A-NHC-1
EIS (Preliminary Estimate)

Columb C	EIS (Freiiminary Estimate)						11 0110	evenue Ops	2020
Columber		Quantity	Base Year	Base Year	Base Year	Base Year	Base Year	Base Year	YOE Dollars
Company Comp				Dollars		Dollars Unit			Total
To QUIDEWAY & TRACK ELEMENTS (route miles)					-				(X000)
10 GUIDENY A TRACK ELEMENTS (route miles)			(X000)		(X000)	(X000)			
10.01 Collebury A-grade enterior clinic (labor consistent)									
10.102 Guldweiny Algolate networking (allows cross-tentric) 6.79 30.367 9.947 49.234 15.6867 0 0 0 0 0 0 0 0 0	,	17.32	321,498	92,403		\$23,902	41%	26%	
10.00 Goldeneys Arigade in more laterior 3.00 179.042 55.9887 383.075 388.6077 0.00									
10.05 Guideney, Partial statuture 3.39 179.942 55.9893 233.920 56.0007 0 0 0 0 0 0 0 0 0	the state of the s	8.70	39,387			\$5,662			
1.01					_				
10.06 Guideeny, Underground and Sover 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	· · · · · · · · · · · · · · · · · · ·								
10.07 Guideney, Underground kennel 3.12 36.430 8.850 44.208 514.105 0 0 0 0 0 0 0 0 0		1.51	6,108			\$5,066			
10.00 Guideney, Retained out of III									
10.00 Track: Elimendedid									
10.10 Track: Bloated 10.17 Track: Special (settless, turroush) 2.25 3.36 6.973 3.062 0.073 2.072 0.056 0.073		3.12	1			\$14,185			
10.11 Track: Septel (settines, burnouts)					-7				
10.12 Track: Special (swatches, surrousing)									
10.13 Tracks, Vibration and roise dampering	10.11 Track: Ballasted		23,263	6,979	30,242				0
28 STATIONS, STOPS, TERMINALS, INTERMODAL (numb 17 91,856 22,465 117,321 86,961 12% 79 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0									
2001 Advanced station, stop, sheller, mail, terminal, platform									
2002 Arrisd station, stop, shelter, malt, terminal, patrol patrol 0	20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb		91,856	25,465	117,321		12%	7%	0
20.00 Underground estation, study, stembrais: Intermodal, feery, solley, etc. 0 0 0 0 0 0 0 0 0	20.01 At-grade station, stop, shelter, mall, terminal, platform		1						
20.04 Other stations, landings, terminals: Intermodal, ferry, trolloy, etc.	20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720		13,936	\$6,968			
20.05 Joint development parting multi-story structure 20.07 Elevators, escalators 30.01 Polity FACILITIES: "ARDS, SHOPS, ADMIN, BLDG 30.01 Administration Building, Office, sales, storage, revenue counting 30.01 Administration Building, Office, sales, storage, revenue counting 30.02 Light Membranene Facility 20.03 Heavy Maintenance Facility 20.04 Storage of Maintenance Facility 20.04 Storage of Maintenance Facility 20.05 Storage of Maintenance Facility 20.06 Storage of Maintenance Facility 20.06 Storage of Maintenance Facility 20.07 Storage of Maintenance Facility 20.07 Storage of Maintenance Facility 20.08 Storage of Maintenance Facility 20.09 Storage of Maintenance Facility 20.00 Storage of Maintenance Facility 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Maintenance Code Storage of Maintenance of Way Building 20.00 Storage of Way Building 20.00 Stora	· · · · · · · · · · · · · · · · · · ·								
20.06 Automobile parking multi-story structure 41,831 10,488 52,289 0 0 0 0 0 0 0 0 0		lley, etc.							
20.07 Elevators, escalators 4,558 1,581 5,899 0	·								
39.0 VEDICATE (CALIFIES): VARDS, SHOPS, ADMIN, BLOG 1/22 56.832 17.049 73.881 \$4.267 7% 5% 0 30.01 Administration Building, Office, sales, storage, revenue counting 30.02 Light Maintenance Facility 0 30.03 Heavy Ministreanne Facility 0 30.04 Storage of Maintenance of Wey Building 12.207 3.692 15.599 32.755 0 40.03 Storage of Maintenance of Wey Building 12.207 3.692 15.599 32.755 0 40.03 Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.5999 32.755 0 40.03 Flat Storage of Maintenance of Wey Building 12.207 3.692 15.696 15.696 15.696 15.696 0 40.04 Storage of Maintenance of Wey Building 12.207 3.692 15.696									
33.01 Administration Building: Office, sales, storage, revenue counting 7,024 2,107 9,132 0 0 0 0 0 0 0 0 0	20.07 Elevators, escalators								
30.02 Light Maintenance Facility 25.196 7.599 32,755 0.0 0.0						\$4,267	7%	5%	
30.0.0 Blorage of Maintenance Facility 25,168 7,559 32,756 0 0 0 0 0 0 0 0 0		counting	7,024						
30.05 Yard and Yard Track 12,307 3,692 15,999 0 0 0 0 0 0 0 0 0	· · · · · · · · · · · · · · · · · · ·								
30.05 Yard and Yard Track									
40 STEWORK & SPECIAL CONDITIONS 40.01 Demolition, Clearing, Earthwork 40.01 Demolition, Clearing, Earthwork 40.02 Site Utilities, Utility Relocation 40.03 Haz, and, contain'd soil of removal/mitigation, ground water freatments 40.03 Haz, and, contain'd soil of removal/mitigation, ground water freatments 40.04 Environmental mitigation, e.g. vetlands, historic/archaelogic, parks 40.05 Site transfurctures including retaining walls sound walls 40.05 Site transfurch in the access and accommodation, landscapping 40.05 Temporary Facilities and other indirect costs during construction 50.05 STEMES 50.07 Infair Singhals and crossing protection 50.01 Train control and signals 50.01 Train control and signals 50.02 Traffic signals and crossing protection 50.03 Tratific signals and crossing protection 50.03 Tratific signals and crossing protection 50.04 Traction power signal sound crossing protection 50.05 Far collection system and equipment 50.05 Communications 50.05 Far collection system and equipment 50.07 Far collection system and equipment 50.07 Far collection system and equipment 50.08 Far collection system and equipment 50.09 For Central Control 60.09 For Central Control 60.00 For Collection system and equipment 60.00 Far collection system and equipmen									
40.0 Set be United, Clearing, Earthwork 40.0 Set be United, Willies, Multip Relocation 40.03 Integrating willing, Multip Relocation 40.03 Integrating willing, Multip Relocation 40.04 Environmental mitigation, ground water freatments 40.05 Site structures including retaining walls, sound walls 40.06 Predestrian's plake access and accommendation, Indecisioning 40.07 Automobile, bus, van accessweys including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 40.08 Temporary Facilities and other indirect costs during construction 40.08 Temporary Facilities and other indirect costs during construction 50 SYSTEMS 50.01 Train control and signals 50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations 50.03 Traction power supply: substations 50.04 Traction power supply: substations 50.05 Fare collection system and equipment 50.06 Fare collection system and equipment 50.06 Fare collection system and equipment 50.07 Central Cortrol 50.07 Purchase or losse of real estate 60.07 Purchase or losse of real estate 60.09 Purchase or losse of real estate 60.00 Purchase or losse	30.05 Yard and Yard Track			-	15,996				0
40.03 Haz, mail, relacation 40.04 Environmental mitigation, e.g. wetlands, historicarcheologic, parks 40.05 Site structures including relating walls, sound walls 40.06 Site structures including relating walls, sound walls 40.07 Automobile, bus, van accessways including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 50.08 Temporary Facilities and other indirect costs during construction 50.09 Train centrel and signalis 50.01 Train centrel and signalis 50.02 Traffic splase and creasing protection 50.03 Tractice power supply: substations 50.01 Tractice power supply: substations 50.02 Traffic power distribution: category and third rail 50.06 Fare collection system and equipment 50.06 Fare collection system and equipment 6,600 1,980	40 SITEWORK & SPECIAL CONDITIONS	17.32	135,899	45,251	181,150	\$10,461	18%	12%	0
40.00 Haz. martl. contrain d soil removal/minigation, ground water treatments 4.00 2.200 6.500 0 0 0 0 0 0 0 0 0	40.01 Demolition, Clearing, Earthwork		3,574	1,251					
40.06 Environmental miligation, e.g., wellands, historicarcheologic, parks 40.05 Sile structures including retaining walls, sound walls 50.0 150	40.02 Site Utilities, Utility Relocation		68,620	26,076	94,696				0
40.05 Rie structures including retaining walls, sound walls	40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water	er treatments	4,400	2,200	6,600				0
40.00 Pedestrian / Dike access and accommodation, landscaping 40.07 Automobile, but, wan accessways including roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 3,242 973 4,215 0 0 0 0 0 0 0 0 0	40.04 Environmental mitigation, e.g. wetlands, historic/archeole	ogic, parks	3,658	1,097	4,755				0
40.07 Automobile, bus, van accessavays incluting roads, parking lots 40.08 Temporary Facilities and other indirect costs during construction 3.242 973 4.215 50 SYSTEMS 50.01 Train control and signals 50.02 Traffic signals and crossing protection 50.02 Traffic signals and crossing protection 50.02 Traffic signals and crossing protection 50.03 Traction power supply; substations 50.04 Traction power distribution: catenary and third rail 50.06 Communications 50.06 Fare collection system and equipment 50.06 Fare collection system and equipment 6,500 1,580 3,783 61,763 50.07 Central Control 50.08 Fare collection system and equipment 6,500 1,580 9,590 50.07 Central Control 50.01 Proteins or insance from selestate 6,002 Relocation of existing households and businesses 6,002 Relocation of existing households and businesses 70 VEHICLES (number) 70 VEHICLES (number) 70.01 Light Rail 70.02 Commuter Rail 70.03 Communer Rail 70.03 Communer Rail 70.04 Bus 70.05 Other 70.05 Other 70.05 Other 70.05 Other 70.05 Other 70.05 Other 70.06 Other 70.07 Spare parts 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80 Protessional Liability and other Non-Construction Insurance 80.06 Engineering 90 UNALLOCATED Cost (10 - 100) 17.72	40.05 Site structures including retaining walls, sound walls		500	150	650				
40.08 Temporary Facilities and other indirect costs during construction 5.0 SYSTEMS 5.0 SYSTEM	40.06 Pedestrian / bike access and accommodation, landscapi	ng	5,283	1,849	7,132				0
17-32 166.622 46.138 212.756 \$12.287 21% 14% 0 0 0 0 0 0 0 0 0	40.07 Automobile, bus, van accessways including roads, parki	ng lots	46,622	11,656	58,278				0
So.0.1 Train control and signals and crossing protection 18,666 3.73.3 2.2400 0 0 0 0 0 0 0 0 0	40.08 Temporary Facilities and other indirect costs during cons	struction	3,242	973	4,215				0
18,666 3,733 22,400 37,911 7,582 45,493 0 0 0 0 0 0 0 0 0	50 SYSTEMS	17.32	166,622	46,138	212,760	\$12,287	21%	14%	0
37.911 7.582 45.493 5.198 31.189 0 0 0 0 0 0 0 0 0	50.01 Train control and signals		33,371	10,011	43,382				0
So.04 Traction power distribution: catenary and third rail 25,991 5,198 31,189 44,083 17,633 61,716 0 0 0 0 0 0 0 0 0	50.02 Traffic signals and crossing protection		18,666	3,733	22,400				0
\$40.03	50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.06 Fare collection system and equipment 6,600 1,980 8,580 0 0 0 0 0 0 0 0 0	50.04 Traction power distribution: catenary and third rail		25,991	5,198	31,189				0
Solid Central Control Construction Subtotal (10 - 50) 772,706 226,306 99,013 \$57,692 100% 64% 0	50.05 Communications		44,083	17,633	61,716				0
Construction Subtotal (10 - 50)	50.06 Fare collection system and equipment		6,600	1,980	8,580				0
17.32	50.07 Central Control			0	0				0
60.01 Purchase or lease of real estate 60.02 Relocation of existing households and businesses 70 VEHICLES (number) 44 84.000 8.400 92.400 \$2.100 6% 0 70.01 Light Rail 17 76.500 7.650 84.150 \$4.950 70.02 Heavy Rail 17 76.500 7.650 84.150 \$4.950 70.03 Commuter Rail 70.04 Bus 70.05 Other 70.05 Other 70.07 Spare parts 10 700 70 770 \$77 0.77 Spare parts 117 6.800 680 7.480 \$4.40 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 54.089 5.409 59.498 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 10 Float Project Cost (10 - 100) 17.32 1,190.427 292,324 1,482,751 \$85,627 94% 11,500 Float Project Cost (10 - 100) 17.32 1,190.427 292,324 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,190.427 292,324 1,482,751 \$80,0765 100% 0 Total Project Cost (10 - 100) 17.32 1,190.427 292,324 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,776 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,776 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 10	Construction Subtotal (10 - 50)	17.32	772,706	226,306	999,013	\$57,692	100%	64%	0
Section Color Co	60 ROW, LAND, EXISTING IMPROVEMENTS	17.32	121,226	36,368	157,594	\$9,101		10%	0
170 VEHICLES (number) 44 84,000 8,400 92,400 \$2,100 6% 0	60.01 Purchase or lease of real estate		94,486	28,346	122,832				0
Tool Light Rail	60.02 Relocation of existing households and businesses		26,740	8,022	34,762				0
Tool Light Rail	70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.03 Commuter Rail 70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.06 Non-revenue vehicles 70.07 Spare parts 10 700 70 770 \$77 70.07 Spare parts 11 6,800 680 7,480 \$440 0 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 7,727 773 8,500 80.08 Start up 7,727 773 8,500 80.08 Start up 7,727 773 8,500 80.09 Start up 7,727 773 8,500 80.00 Subtotal (10 - 80) 80 Unallocated Contingency as % of Base Yr Dollars w/o Contingency 11,32 1,517,1716 \$90,765 100% 100 FINANCE CHARGES 0 0 0% 0 0 0% 100 FINANCE CHARGES 1 0 0 0% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			76,500	7,650					0
70.04 Bus 70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 10 700 70 770 \$77 800 \$77 800 \$77.00 \$77 800 \$77.00 \$77 800 \$77 800 \$77.00 \$77 800	70.02 Heavy Rail				0				0
70.05 Other 70.06 Non-revenue vehicles 70.07 Spare parts 10 700 70 770 \$77 11 6,800 680 7,480 \$440 80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 17.32 1,190,427 292,324 1,482,751 \$85,627 94% 0 90 UNALCOCATED CONTINGENCY Subtotal (10 - 90) 17.32 1,571,716 \$90,765 100% 0 100 FINANCE CHARGES 0 0 0% 0 Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Project Cost per Mile Not Including Vehicles (X000) So	70.03 Commuter Rail				0				0
10 700 70 770 \$77 \$7 \$77 \$77 \$77 \$77 \$77 \$77 \$77 \$77 \$77 \$77 \$7 \$77 \$7	70.04 Bus				0				0
17	70.05 Other				0				0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50) 80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 7,727 773 8,500 80.08 Start up 80.09 Ty.32 1,190,427 292,324 1,482,751 \$85,627 94% 0 90 UNALLOCATED CONTINGENCY 80 UNALLOCATED CONTINGENCY 80 UNALLOCATED CONTINGENCY 80 UNALLOCATED Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Total Project Cost per Mile (X000) YOE Total Project Cost per Mile (X000) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	70.06 Non-revenue vehicles	10	700	70	770	\$77			0
80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 17,32 1,545 17,000 80.08 Start up 80.00 17,32 1,190,427 292,324 1,482,751 \$85,627 94% 0 80.06 UNALLOCATED CONTINGENCY 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.09 17,32 1,190,427 292,324 1,482,751 \$85,627 94% 0 80.09 UNALLOCATED CONTINGENCY 80.00 U	70.07 Spare parts	17		680	7,480	\$440			0
80.01 Project Development 80.02 Engineering 80.03 Project Management for Design and Construction 80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 80.08 Start up 80.09 17,727 773 8,500 80.08 Start up 80.09 17,32 1,90,427 292,324 1,482,751 \$85,627 94% 0 90 UNALLOCATED CONTINGENCY 80 17,32 1,571,716 \$90,765 100% 0 Subtotal (10 - 90) 17,32 1,571,716 \$90,765 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Sabes Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Total Project Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000)	80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17.32	212,494	21,249	233,744	\$13,498	23%	15%	0
80.03 Project Management for Design and Construction 19,318 1,932 21,249 0 0 0 0 0 0 0 0 0			38,635	3,864	42,499				0
80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 7,727 773 8,500 80.08 Start up 80.08 Start	80.02 Engineering		54,089	5,409	59,498				0
80.04 Construction Administration & Management 80.05 Professional Liability and other Non-Construction Insurance 80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 7,727 773 8,500 80.08 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 80,90 WALLOCATED	80.03 Project Management for Design and Construction		19,318	1,932	21,249				0
80.06 Legal; Permits; Review Fees by other agencies, cities, etc. 80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 7,727 773 8,500 80.08 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 17,32 1,190,427 292,324 1,482,751 \$85,627 94% 0 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 17,32 1,571,716 \$90,765 100% 0 100 FINANCE CHARGES 0 0 0% 0 Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000)	80.04 Construction Administration & Management		54,089	5,409	59,498				0
80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,454 1,545 17,000 7,727 773 8,500 0 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 88,965 6% 0 Subtotal (10 - 90) 17,32 1,190,427 292,324 1,482,751 \$85,627 94% 0 Subtotal (10 - 90) 17,32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17,32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	80.05 Professional Liability and other Non-Construction Insura	nce	7,727	773	8,500				0
80.07 Surveys, Testing, Investigation, Inspection 80.08 Start up 15,454 1,545 17,000 7,727 773 8,500 0 Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY 88,965 6% 0 Subtotal (10 - 90) 17,32 1,190,427 292,324 1,482,751 \$85,627 94% 0 Subtotal (10 - 90) 17,32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17,32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0				1,545					0
80.08 Start up 7,727 773 8,500 0 Subtotal (10 - 80) 17.32 1,190,427 292,324 1,482,751 \$85,627 94% 0 90 UNALLOCATED CONTINGENCY 88,965 6% 0 Subtotal (10 - 90) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency 24,56% Unallocated Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0			15,454	1,545	17,000				0
90 UNALLOCATED CONTINGENCY 88,965 6% 0 Subtotal (10 - 90) 17.32 1,571,716 90,765 100% 0 0% 0 100 FINANCE CHARGES 100% 17.32 1,571,716 90,765 100% 0 0 0 0 0 0 0 0 0 0 0 0	80.08 Start up								0
90 UNALLOCATED CONTINGENCY 88,965 6% 0 Subtotal (10 - 90) 17.32 1,571,716 \$90,765 100% 0 100 FINANCE CHARGES 0 0 0% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency 24.56% 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	ooloo otali up	17.32	1,190,427	292,324	1,482,751	\$85,627		94%	0
Subtotal (10 - 90) 17.32 1,571,716 \$90,765 100% 0 100 FINANCE CHARGES 0 0% 0 Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0 Allocated Contingency as % of Base Yr Dollars w/o Contingency 24.56% Unallocated Contingency as % of Base Yr Dollars w/o Contingency 7.47% Total Contingency as % of Subtotal (10 - 80) 32.03% Unallocated Contingency as % of Subtotal (10 - 80) 6.00% YOE Construction Cost per Mile (X000) \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80)								
100 FINANCE CHARGES 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•					000 705			
Total Project Cost (10 - 100) 17.32 1,571,716 \$90,765 100% 0	Subtotal (10 - 80)	17.32			1,571,716	\$90,765		100 /6	
Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency 7.47% Total Contingency as % of Base Yr Dollars w/o Contingency 32.03% Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	17.32				\$90,765			
Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) 7.47% 32.03% 6.00% \$0 YOE Total Project Cost per Mile Not Including Vehicles (X000)	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90)	17.32			0			0%	0
Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES	17.32			0 1,571,716			0%	0
Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100)	17.32			0 1,571,716 24.56%			0%	0
YOE Construction Cost per Mile (X000) YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	17.32			0 1,571,716 24.56% 7.47%			0%	0
YOE Total Project Cost per Mile Not Including Vehicles (X000) \$0	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	17.32			0 1,571,716 24.56% 7.47% 32.03%			0%	0
	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	17.32			0 1,571,716 24.56% 7.47% 32.03%			0%	0
	Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY Subtotal (10 - 90) 100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80) YOE Construction Cost per Mile (X000)	17.32			0 1,571,716 24.56% 7.47% 32.03%			0%	0 0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C2A-NHC-2
EIS (Preliminary Estimate) Today's Date
Yr of Base Year \$ 2015
Yr of Revenue Ops 2020

(Rev-Mar2015)

	Quantity	Base Year	Base Year	Base Year	Base Year	Base Year Dollars	Base Year Dollars	YOE Dollars
		Dollars w/o	Dollars Allocated	Dollars TOTAL	Dollars Unit Cost	Percentage	Percentage	Total (X000)
		Contingency (X000)	Contingency	(X000)	(X000)	of Construction	of Total	(X000)
		(71000)	(X000)	(71000)	(71000)	Cost	Project Cost	
			` '					
AS CHIPPENANCE TRACKET EMENTS (47.00	040.040	00.000	100 711	200 171	440/	2001	
10 GUIDEWAY & TRACK ELEMENTS (route miles) 10.01 Guideway: At-grade exclusive right-of-way	17.20	313,648	90,066	403,714	\$23,474	41%	26%	0
10.01 Guideway. At-grade exclusive right-of-way 10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	8.89	40,777	10,194	50,971	\$5,736			0
10.03 Guideway: At-grade in mixed traffic	0.09	40,777	0	0	ψ3,730			0
10.04 Guideway: At-grade in mixed trainic	3.87	172,484	51,745	224,229	\$57,966			0
10.05 Guideway: Nerial structure	1.49	6,045	1,511	7,556	\$5,068			0
10.06 Guideway: Underground cut & cover		3,010	0	0	40,000			0
10.07 Guideway: Underground tunnel		1	0	0				0
10.08 Guideway: Retained cut or fill	2.95	33,748	8,437	42,185	\$14,288			0
10.09 Track: Direct fixation		15,317	4,595	19,912				0
10.10 Track: Embedded		15,166	4,550	19,716				0
10.11 Track: Ballasted		22,662	6,799	29,460				0
10.12 Track: Special (switches, turnouts)		6,944	2,083	9,028				0
10.13 Track: Vibration and noise dampening		506	152	657				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numb	17	91,730	25,428	117,158	\$6,892	12%	8%	0
20.01 At-grade station, stop, shelter, mall, terminal, platform	15	34,642	10,393	45,034	\$3,002			0
20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720	3,216	13,936	\$6,968			0
20.03 Underground station, stop, shelter, mall, terminal, platfo		<u> </u>	0	0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, tro	niey, etc.	<u> </u>	0	0				0
20.05 Joint development		44 004	0	0				0
20.06 Automobile parking multi-story structure 20.07 Elevators, escalators		41,831 4,538	10,458 1,361	52,289 5,899				0
	17.20	4,538 56,832	17,049	73,881	\$4,296	8%	5%	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDG 30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132	φ4,∠90	0 70	J 70	0
30.02 Light Maintenance Facility	Journing	.,024	0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
40 SITEWORK & SPECIAL CONDITIONS	17.20	134,957	44,693	179,651	\$10,446	18%	12%	0
40.01 Demolition, Clearing, Earthwork		3,556	1,244	4,800				0
40.02 Site Utilities, Utility Relocation		66,103	25,119	91,222				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground wat	er treatments	4,400	2,200	6,600				0
40.04 Environmental mitigation, e.g. wetlands, historic/archeol	ogic, parks	3,810	1,143	4,954				0
40.05 Site structures including retaining walls, sound walls		500	150	650				0
40.06 Pedestrian / bike access and accommodation, landscap	-	5,283	1,849	7,132				0
40.07 Automobile, bus, van accessways including roads, parki		48,078	12,019	60,097				0
40.08 Temporary Facilities and other indirect costs during con-		3,228	968	4,196				0
50 SYSTEMS	17.20	164,601	45,374	209,975	\$12,209	21%	14%	0
50.01 Train control and signals		32,383 19,709	9,715	42,098				0
50.02 Traffic signals and crossing protection 50.03 Traction power supply: substations		37,911	3,942 7,582	23,651 45,493				0
50.04 Traction power distribution: catenary and third rail		25,221	5,044	30,266				0
50.05 Communications		42,777	17,111	59,888				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control		,	0	0				0
Construction Subtotal (10 - 50)	17.20	761,769	222,611	984,380	\$57,236	100%	64%	0
60 ROW, LAND, EXISTING IMPROVEMENTS	17.20	115,307	34,592	149,900	\$8,716		10%	0
60.01 Purchase or lease of real estate		89,873	26,962	116,835				0
60.02 Relocation of existing households and businesses		25,434	7,630	33,065				0
70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.01 Light Rail	17	76,500	7,650	84,150	\$4,950			0
70.02 Heavy Rail		<u> </u>		0				0
70.03 Commuter Rail				0				0
70.04 Bus		 		0				0
70.05 Other 70.06 Non-revenue vehicles	10	700	70	770	\$77			0
70.06 Non-revenue venicies 70.07 Spare parts	10	6,800	680	7,480	\$77 \$440			0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17.20	209,487	20,949	230,435	\$13,398	23%	15%	0
80.01 Project Development	17.20	38,088	3,809	41,897	φ13,330	2370	1370	0
80.02 Engineering		53,324	5,332	58,656				0
80.03 Project Management for Design and Construction		19,044	1,904	20,949				0
80.04 Construction Administration & Management		53,324	5,332	58,656				0
80.05 Professional Liability and other Non-Construction Insura	nce	7,618	762	8,379				0
80.06 Legal; Permits; Review Fees by other agencies, cities, e		15,235	1,524	16,759				0
80.07 Surveys, Testing, Investigation, Inspection		15,235	1,524	16,759				0
80.08 Start up		7,618	762	8,379				0
Subtotal (10 - 80)	17.20	1,170,563	286,551	1,457,114	\$84,722		94%	0
90 UNALLOCATED CONTINGENCY				87,427			6%	0
Subtotal (10 - 90)	17.20			1,544,541	\$89,806		100%	0
100 FINANCE CHARGES	17.00			0	600.000		0%	0
Total Project Cost (10 - 100)	17.20			1,544,541	\$89,806		100%	0
Allocated Contingency as % of Base Yr Dollars w/o Contingency				24.48% 7.47%				
Unallocated Contingency as % of Base Yr Dollars w/o Contingency				31.95%				
Total Contingency as % of Base Yr Dollars w/o Contingency				6.00%				
Unallocated Contingency as % of Subtotal (10, 90)								
Unallocated Contingency as % of Subtotal (10 - 80) YOF Construction Cost per Mile (X000)				6.00%				\$0
YOE Construction Cost per Mile (X000)				6.00%				\$0 \$0
				6.00%				\$0 \$0 \$0

TRIANGLE TRANSIT AUTHORITY
ALTERNATE - C2A-NHC-LPA
EIS (Preliminary Estimate)

10 GUIDEWAY & TRACK ELEMENTS (route miles)	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated	Base Year Dollars	Base Year Dollars Unit	Base Year Dollars	Base Year Dollars	YOE Dollars
10 CHIDEWAY 9 TRACK EL FAMPATO (1914 - 111-11)		Dollars w/o Contingency	Dollars	Dollars				
10 CHIDEWAY 9 TRACK EL FAMPATO (south mills -)			Allocated					Total
40 CHIDEWAY 9 TRACK EL FAMPATO (seude mille s)		(X000)		TOTAL	Cost	Percentage of	Percentage of	(X000)
10 CHIDEWAY 9 TRACK EL PARATE (12) 42 - 11-11		(71000)	Contingency	(X000)	(X000)	Construction	Total	
10 CHIDEWAY & TRACK EL FAFAITO (seuto miles)			(X000)			Cost	Project Cost	
10 CHIDEWAY & TRACK ELEMENTS (sauta miles)								
TO GODEWAT & IKAGN FLEWENTS (FOUR MIRS)	17.00	307,397	88,204	395,601	\$23,266	40%	26%	0
10.01 Guideway: At-grade exclusive right-of-way	11100	, , , , ,	,	0	\$20,200	1070	20,0	0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic	8.96	41,119	10,280	51,398	\$5,739			0
10.03 Guideway: At-grade in mixed traffic			0	0				0
10.04 Guideway: Aerial structure	3.65	167,302	50,191	217,493	\$59,594			0
10.05 Guideway: Built-up fill	1.52	6,145	1,536	7,681	\$5,063			0
10.06 Guideway: Underground cut & cover			0	0				0
10.07 Guideway: Underground tunnel			0	0				0
10.08 Guideway: Retained cut or fill	2.88	33,034	8,259	41,293	\$14,335			0
10.09 Track: Direct fixation		14,451	4,335	18,786				0
10.10 Track: Embedded		15,321	4,596	19,917				0
10.11 Track: Ballasted		22,629	6,789	29,417				0
10.12 Track: Special (switches, turnouts)		6,896 500	2,069 150	8,965 650				0
10.13 Track: Vibration and noise dampening	b 17	92,049	25,523	117,572	\$6.016	120/	8%	0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (numl 20.01 At-grade station, stop, shelter, mall, terminal, platform	15	34,960	10,488	45,448	\$6,916 \$3,030	12%	070	0
20.02 Aerial station, stop, shelter, mall, terminal, platform	2	10,720	3,216	13,936	\$6,968			0
20.03 Underground station, stop, shelter, mall, terminal, platform		10,120	0	0	ψ0,000			0
20.04 Other stations, landings, terminals: Intermodal, ferry, t			0	0				0
20.05 Joint development	,,		0	0				0
20.06 Automobile parking multi-story structure		41,831	10,458	52,289				0
20.07 Elevators, escalators		4,538	1,361	5,899				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDO	17.00	56,832	17,049	73,881	\$4,345	8%	5%	0
30.01 Administration Building: Office, sales, storage, revenue		7,024	2,107	9,132	, ,			0
30.02 Light Maintenance Facility			0	0				0
30.03 Heavy Maintenance Facility		25,196	7,559	32,755				0
30.04 Storage or Maintenance of Way Building		12,307	3,692	15,999				0
30.05 Yard and Yard Track		12,305	3,691	15,996				0
40 SITEWORK & SPECIAL CONDITIONS	17.00	136,043	45,131	181,174	\$10,655	19%	12%	0
40.01 Demolition, Clearing, Earthwork		3,557	1,245	4,801				0
40.02 Site Utilities, Utility Relocation	.1	69,348	26,352	95,700				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground wa		4,000	2,000	6,000				0
40.04 Environmental mitigation, e.g. wetlands, historic/arched	ologic, parks	3,831	1,149	4,980				0
 40.05 Site structures including retaining walls, sound walls 40.06 Pedestrian / bike access and accommodation, landsca 	ning	500 3,710	150 1,298	650 5,008				0
40.07 Automobile, bus, van accessways including roads, parl		47,867	11,967	59,834				0
40.07 Automobile, bus, valifaccessways including roads, part 40.08 Temporary Facilities and other indirect costs during co		3,231	969	4,201				0
50 SYSTEMS	17.00	163,850	45,090	208,939	\$12,288	21%	14%	0
50.01 Train control and signals	17.00	32,015	9,604	41,619	Ψ12,200	2170	1470	0
50.02 Traffic signals and crossing protection		20,099	4,020	24,119				0
50.03 Traction power supply: substations		37,911	7,582	45,493				0
50.04 Traction power distribution: catenary and third rail		24,934	4,987	29,921				0
50.05 Communications		42,291	16,916	59,207				0
50.06 Fare collection system and equipment		6,600	1,980	8,580				0
50.07 Central Control			0	0				0
Construction Subtotal (10 - 50)	17.00	756,170	220,997	977,167	\$57,470	100%	64%	0
60 ROW, LAND, EXISTING IMPROVEMENTS	17.00	114,865	34,459	149,324	\$8,782		10%	0
60.01 Purchase or lease of real estate		89,528	26,858	116,386				0
60.02 Relocation of existing households and businesses		25,337	7,601	32,938	40.155		001	0
70 VEHICLES (number)	44	84,000	8,400	92,400	\$2,100		6%	0
70.01 Light Rail 70.02 Heavy Rail	17	76,500	7,650	84,150	\$4,950			0
70.02 Heavy Rail 70.03 Commuter Rail	<u> </u>			0				0
70.04 Bus				0				0
70.05 Other				0				0
70.06 Non-revenue vehicles	10	700	70	770	\$77			0
70.07 Spare parts	17	6,800	680	7,480	\$440			0
80 PROFESSIONAL SERVICES (applies to Cats. 10-50)	17.00	207,947	20,795	228,741	\$13,453	23%	15%	0
80.01 Project Development		37,809	3,781	41,589	ĺ			0
80.02 Engineering		52,932	5,293	58,225				0
80.03 Project Management for Design and Construction		18,904	1,890	20,795				0
80.04 Construction Administration & Management		52,932	5,293	58,225				0
80.05 Professional Liability and other Non-Construction Insur		7,562	756	8,318				0
80.06 Legal; Permits; Review Fees by other agencies, cities,	etc.	15,123	1,512	16,636				0
80.07 Surveys, Testing, Investigation, Inspection		15,123	1,512	16,636				0
80.08 Start up	47.00	7,562	756	8,318	CC 4 10		0.404	0
Subtotal (10 - 80) 90 UNALLOCATED CONTINGENCY	17.00	1,162,982	284,651	1,447,633 86,858	\$85,140		94% 6%	0
Subtotal (10 - 90)	17.00			1,534,491	\$90,248		100%	0
JUNE 110 - 301	17.00			0	ψJU, ∠4 0		0%	0
, ,				1,534,491	\$90,248		100%	0
100 FINANCE CHARGES	17.00			24.48%	+30,240		.0070	
100 FINANCE CHARGES Total Project Cost (10 - 100)	17.00			24.40%				
100 FINANCE CHARGES	-			7.47%				
100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency	-							
100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency	-			7.47%				
100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency	-			7.47% 31.94%				\$0
100 FINANCE CHARGES Total Project Cost (10 - 100) Allocated Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Base Yr Dollars w/o Contingency Total Contingency as % of Base Yr Dollars w/o Contingency Unallocated Contingency as % of Subtotal (10 - 80)	-			7.47% 31.94%				\$0 \$0 \$0